The Province of Alberta

PETROLEUM AND NATURAL GAS CONSERVATION BOARD

IN THE MATTER OF THE GAS RESOURCES PRESERVATION ACT

AND IN THE MATTER of a Joint Hearing to determine various questions relating to the proposed Export of Natural Gas from the Province of Alberta.

I. N. McKinnon Esq., Chairman

D. P. Goodall Esq.

Dr. G. W. Govier

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MR. C.E. SMITH: I wonder, sir, before you proceed with the ordinary business, I might mention a matter that has been mentioned to me since the last adjournment. Mr. Mainwaring of the British Columbia Electric, I believe, subsequently to be represented by Mr. Bruce Massie of Edmonton, would like to speak to the matter of the agenda, and following him Mr. Val Milvain, K.C., on behalf of Western Coal Federation of Canada would also like to speak to the agenda if the Board will hear them now. It is not a matter of evidence, it is just a matter of agenda.

MR. MAINWARING: Mr. Chairman and gentlemen, I am not only making this request on behalf of the British Columbia Electric but also on behalf of all of the gas distributing companies on the Pacific Coast who have previously filed with the Board market submissions. We wish to submit an economic study and, with the consent of counsel, I would like to ask the Board if it could possibly set Monday morning next as the time at which we could appear so that I could bring Mr. Grower and others here for that occasion. I have the brief in printed form and I am in a position this morning to distribute it to all those who are interested so that they would have the full week to study it, and Mr. Grower would, of course, be ready to submit to cross-examination after he had presented the brief. It is not a lengthy brief, just a short one, and would not take very long. I do not think it would take him more than

Mr. Mainwaring.
Mr. Milvain.

twenty minutes to present it.

THE CHAIRMAN: We would like to have the views of other counsel in regard to Mr. Grower appearing on Monday.

MR. STEER: Satisfactory to me, sir.

MR. MARTLAND: Quite satisfactory to me, sir.

MR. S.B. SMITH: We have no objection, sir.

MR. McDONALD: I have no objection, sir. I have no idea what the gentleman is going to say.

MR. C.E. SMITH: You would probably like to hear him anyway, Mr. McDonald.

MR. McDONALD: Yes.

THE CHAIRMAN: We will hear Mr. Grower at 10:30 next Monday morning.

MR. MAINWARING: Thanks very much, and I will distribute the copies to all those who are interested.

THE CHAIRMAN: Mr. Milvain?

MR. MILVAIN: Mr. Chairman, I appear for the Western Coal Federation of Canada. I think that you and the Board may be interested in knowing that that Association is composed, really, of three associations. They are the Western Canada Bituminous Coal Operators' Association, Dominion Coal Operators Association of Western Canada, and United Mine Workers of America District No. 18. I may say, too, sir, that I have associated with me in an advisory capacity two very eminent members of the United States Bar in the person of Mr. Tom David McGrath and Mr. W. K. Hopkins, both of Washington. Mr. McGrath represents a great number of organizations. He may be generally described as representing the coal and railroad transportation interests of the United States, whereas

Mr. Milvain.
Mr. Macleod.

Mr. Hopkins is the general counsel for the U.M.W.A. We hope, Mr. Chairman, that our intervention into this Hearing will prove of assistance to this Board in seeking out the information that it requires, and that that information will be of assistance to you in arriving at the important conclusion at which you must arrive. We intend before the Hearing is completed to file one, if not two, briefs, dealing with, firstly, one might say, the technical end of the matter and, secondly, with the economic end of the matter. We have approached experts on that subject but right at the moment we are not in a position to announce just exactly when they will be prepared to have their submissions ready or exactly what ground they will cover. I will inform the Board just as quickly as I know.

THE CHAIRMAN: Mr. McDonald?

MR. J.E.A. MACLEOD: If the Board pleases, I would like to make a statement before the matter goes further. As your Board remembers, certain suggestions have appeared in the evidence that the Montana Power Company is associated with the amended application of the Westcoast Company. Now, in order to avoid confusion in connection with the application of Westcoast Transmission Company for a permit to export Pincher Creek gas to the Spokane area, I wish to state that Westcoast Transmission Company has terminated the agreement with Montana Power Company and therefore the Montana Power Company wants the record to show that there is no relationship existing between Westcoast Transmission Company and the Montana Power Company regarding the project to take gas from the Pincher Creek area to the Inland Empire.

MR. McDONALD: Yes. Mr. Chairman, I just

Mr. McDonald.

learned of the statement made by Mr. Macleod a moment ago and I have prepared a statement that I did wish to make this morning with regard to this project of transmitting gas from Pincher Creek field to the limited market in the Spokane or Inland Empire area of Washington, Idaho and the State of Montana.

Now, I want to refer again to the application by the Westcoast Company to this Board in which it was clearly set out that the main purpose of the proposal by the Westcoast Company to take gas from the Pincher Creek field was to make possible the development of that field so that the deliveries to the Canadian Western system required in the year 1958 can be met from the Pincher Creek field. That is clearly set out. You will recollect that our application recites the problems and the matter of meeting the Alberta requirements from the interim report and then goes on to show what, in the humble opinion of the Westcoast Company, was at least one method of meeting the requirements of the people of this southern part of this Province.

Now, we have submitted and we have gone along at considerable expense, and I might say with the co-operation up to this moment or up until some time yesterday afternoon of the Montana Power Company, and we have prepared these submissions as to deliverability, the costs submission, cost of transportation. We also have a market submission ready and we have already also done the preliminary work of engineering and it is now in the course of preparation, a report of the proposed storage field in the North Cut Bank field, which would be submitted or intended to be submitted by Dr. J. F. Dodge when he appears for the McColl-Union group

Mr. McDonald.

later at this Hearing.

There is another point that has arisen also since Thursday of last week and that is the question of a contract with the Gulf Company with reference to using gas from Pincher Creek field. A submission or proposal was made to that company. We were advised late on Thursday evening that the proposal was not acceptable and that a contract had been entered into by the Canadian Gulf Company and the Northwest Gas Company, copies of which were distributed to counsel on Saturday last.

Now, in view of paragraph 17-A of that contract, Westcoast still deems it advisable to continue its presentation to this Board, and with the leave of the Board we would like to complete our record on the first part of our application as submitted. In other words, Mr. Chairman, I would like to submit today Mr. Sample's report on the market area in the Spokane and Inland Empire area and deal with the transportation costs submission which has been distributed and then the record will be complete with the exception of the storage proposal. Then we can deal with the situation as to other points that may arise after these submissions have been dealt with.

THE CHAIRMAN: You can proceed with those submissions, Mr. McDonald.

MR. McDONALD: Thank you.

COLEMAN R. SAMPLE, recalled, already sworn, examined by Mr. McDonald, testified as follows:

Q This is a submission which is entitled "Pipe Line Project to Inland Empire, Market for Natural Gas".

SUBMISSION, PIPE LINE PROJECT TO INLAND EMPIRE, MARKET FOR NATURAL GAS, PUT IN AND MARKED EXHIBIT No. 51.

Mr. Sample, you have been sworn and you are qualified. Would you just read your submission and I think it would be the quickest way of dealing with it.

A This is "Market for Natural Gas along Proposed Pipe Line to Inland Empire".

The proposed pipe line of the Westcoast Transmission Company Limited would supply natural gas to communities in Montana, Idaho, eastern Washington, and to British Columbia as shown in a following tabulation. The principal city to be served is Spokane, Wash., which is now supplied with butane-air gas. None of the other communities to be reached have natural gas or manufactured gas.

The main line of the system runs to Spokane, Wash., with an extension to Medical Lake, about 12 miles southwest of Spokane. A branch line runs northward from Spokane to Trail, British Columbia. The communities to be supplied with natural gas, their 1950 populations, and estimated populations in 1957, taken as the fifth year of operation of the pipe line system, are as follows:

The table on page 2 shows the pipe line and the cities along the main line to Spokane and also the branch

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line to Trail, the 1951 population and also the estimated population in 1957. In total the present population is 254,828.

Population of Communities to be Supplied with Natural Gas

	Population	
	1950	Estimated 1957
Main Line to Spokane		
Whitefish, Mont.,	3,268	3,880
Kalispell, Mont.,	9,737	11,590
Thompson Falls, Mont.,	851	1,190
Wallace, Idaho,	3,133	3,000
Kellogg, Idaho,	4,902	5,000
Coeur d'Alene, Idaho,	12,189	14,050
Spokane, Wash., (Metropolitan Area)	195,000	220,000
Medical Lake, Wash.,	3,015	3,000
Branch Line to Trail		
Deer Park, Wash.,	1,163	1,240
Chewelah, Wash.,	1,691	1,700
Colville, Wash.,	2,989	3,430
Rossland, B.C.,	4,500	5,100
Trail, B.C.,	12,390	14,810
Total -	254,828	287,990

Along the proposed pipe line route and in the metropolitan area of Spokane are located several large industries which are potential users of natural gas for fuel. These industries include zinc and lead smelters, aluminum plants, cement plants, brick and refractory materials plants, paper mills, and the Consolidated Mining and Smelting plant at Trail, B.C. Other large potential gas customers are the state institutions at Medical Lake, Army air base, Naval depot, breweries, dairies, and food processing plants.

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The area to be reached by the proposed pipe line is one in which competitive fuels, namely, oil and coal, are high in cost due largely to the distance from sources of supply. Prices of these fuels for domestic and industrial uses in May 1951 in the Spokane area are as follows.

The following tables show the competitive fuel prices and the equivalent cost for 1,000 Btu. natural gas. I think it might be noted that in the domestic fuel oil cost delivered to Spokane it is equivalent to the cost of natural gas, $1.07-$1.27 per Mcf.

Competitive Fuel Prices
(As of May 1951)

	Unit	Cost Delivered to Spokane	Equivalent Cost per Mcf of 1,000 Btu Natural Gas (B)
Fuel Oil			
Heavy Bunker "C"	Barrel	$3.52	$0.55
PS 300	"	3.98	0.63
PS 400	"	3.68	0.58
Domestic Furnace	Gallon	$.148-$.158	$1.07-$1.14
Stove Oil	"	$.163-$.173	$1.20-$1.27
Coal			
Domestic Stoker	Ton	$18.55 (A)	$0.70
Utah Lump	Ton	19.85 (A)	.75
Utah Commercial Slack	Ton	14.95	.56
Special Stoker Coal	Ton	15.60	.60
Cheaper Grades	Ton	$9.00-$10.00	$.36-$.40

Note: (A) Exclusive of delivery to house and sales tax.
(B) Without consideration of burning efficiencies.

The price of natural gas is expected to be competitive with all the above fuel prices including the cheaper grades of heavy fuel oil for industrial use. The Territory, therefore, is one in which the use of natural gas should be substantial both for domestic and industrial

fuel. It is assumed that local gas companies will be formed to distribute gas in the principal cities along the route.

Estimated Market in the
Fifth Year of Operation.

Extensive studies have been made over the past several months of the potential market for natural gas in the territory to be reached by the proposed pipe line system. These studies included personal interviews with all the larger potential industrial consumers as well as studies as to population growth and climatic conditions affecting the use of natural gas.

Statement attached shows a breakdown of the estimated fifth year sales by domestic, commercial and industrial classifications and the maximum day requirements. Industrial sales are not allocated to the separate communities but are shown in total only for the main line and the branch line to Trail.

Market for Domestic Sales

In general, the estimated residential market throughout the area is based on the assumption that by the fifth year of operation, 50 per cent of the estimated number of families will be natural gas customers and that in all communities, except Spokane, 80 per cent of these domestic consumers will be space-heating customers.

In the case of Spokane which now has a manufactured gas distribution system, it is estimated that 60 per cent of the total number of families will be natural gas customers in the fifth year and that of these customers 60 per cent will be space-heating customers. It is conservatively estimated that the space-heating requirements for resident consumers will be 20 cubic feet per degree-day deficiency and that space-heating customers will use on the average 20 Mcf per year additional for cooking and water heating. General use customers are estimated to require from 12.5 to 15 Mcf per year.

Commercial Sales

Except in the Spokane area, commercial sales have been estimated at 50 per cent of domestic sales, divided, 60 per cent for space-heating and 40 per cent for general use. Commercial sales should be relatively high in communities newly served with gas because normally the commercial section is largely accessible to the initial distribution system. Furthermore, commercial sales include sales to small industries for which no separate estimates have been made at this time.

In the case of the Spokane area, ordinary commercial sales are estimated on the basis of attaching 1,850 consumers of a potential 2,500 by the fifth year of operation. In addition there are several potential customers who are designated, in the estimate, as large commercial users. These are on the borderline between the classification of commercial and industrial users.

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Industrial Market

The potential industrial market is made up of some 15 large concerns which are considered likely customers on the basis of field surveys and a much greater number of small consumers who were not canvassed.

Montana Power Company

The Montana Power Company will be a customer for at least 4 billion cubic feet of gas per year, to be taken on a high load factor basis. It is understood that part of this volume will be used to extend the Montana Power gas system to the city of Missoula, Montana.

It is also planned to use the Cutbank Gas Field owned by the Montana Power Company as a storage reservoir so as to help the pipe line system meet winter peak demands.

Unallocated Market

In the course of the market study there were several intimations of proposed new industrial plants and expansion programs for existing industrial plants which have not been considered in preparing market estimates. There is a possibility of supplying some gas to the Hanford Atomic Energy plant and to food processing plants which are planned in connection with the expansion of the Columbia River Basin Irrigation Project. The unallocated provision for 2 billion cubic feet in the fifth year is a conservative estimate to take care of such potential additional consumers.

Rate of Attaching Fifth Year Load

A high percentage of the total estimated sales in the fifth year are industrial sales, sales to the Montana

Power system, and sales to the Spokane area. Since Spokane has a distribution system and the industrial and the Montana Power sales are immediately available, it is expected that the rate of attaching the estimated fifth year load might be more rapid than herein estimated.

MR. McDONALD: Mr. Chairman, this might be a good point to interrupt. The attention of anyone reading the transcript should be drawn to the statement made by Mr. Macleod, and I think also reference should be made at this point in the transcript to the fact that the Montana Power Company has already filed, through its subsidiary, the Glacier Gas Company, an application with the Federal Power Commission which is consistent with the evidence that is now being given by the witness. There is one other thing, sir, that is drawn to my attention, and I am sorry to interrupt, but I must, and that is Mr. Macleod's statement with regard to the relationship between the two parties, Westcoast and the Montana Power Company, that it had been terminated by Westcoast. It is my understanding, sir, from the correspondence and all of the circumstances that any termination was by the Montana Power Company.

Q Will you go on, Mr. Sample?

A <u>Degree-days in Relation to Heating Load</u>

Average degree-days reported for the different communities to be served are listed as follows:

In this table for each of the principal cities or towns to be served are shown the degree-days from the available weather records. The degree-days generally run from 6,000 to over 8,000 in the territory considered.

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Location	Degree-days
Whitefish, Mont.	7,954
Kalispell, Mont.	8,062
Thompson Falls, Mont.	7,200
Wallace, Idaho	7,200
Kellogg, Idaho	7,200
Coeur d'Alene, Idaho	6,356
Spokane, Wash.	6,356
Medical Lake, Wash.	6,300
Deer Park, Wash.	6,400
Chewelah, Wash.	6,600
Colville, Wash.	6,836
Rossland, B.C.	6,000
Trail, B.C.	6,000

For each of the locations above, information was also available as to the minimum temperature generally used by heating engineers in the territory for making heating installations. Such temeperatures range from 20 degrees below zero in Whitefish, Mont., to 8 degrees below zero in Rossland and Trail, B.C. Study of these data indicated that the load factor for space-heating sales in this territory would range from 22-1/2 to 26 per cent and in the estimates contained herein a factor of 23 per cent was used throughout the territory.

For general use consumption by both domestic and commercial users the load factor of 75 per cent was used in computing maximum daily requirements.

On the attached statement it has been assumed for the purpose of computing the maximum daily requirements that all industrial sales will be made on a firm basis at a 75 per cent load factor. Actually the greater part of the estimated industrial sales could be made on an interruptible basis if necessary for economic reasons. To the extent that industrial sales are made on an interruptible basis the pipe line system as designed has capacity to serve a larger market

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in future years.

The statement following page 8 summarizes the estimated total annual sales and the estimated maximum day demand in the fifth year of operation, subdivided as between the main line to Spokane and the branch line to Trail, and further subdivided by domestic and commercial sales, industrial sales, unallocated portion, and sales to Montana Power System.

Estimated Market for Natural Gas
in the 5th year of Operation (Mcf)

Class of Sales	Total Annual Sales	Estimated Maximum Day
Main Line to Spokane		
Domestic and Commercial	7,149,700 (A)	73,201
Industrial	5,798,000	21,180 (B)
Unallocated	2,000,000	7,306 (B)
Montana Power System	4,000,000	14,612 (B)
Total	18,947,700	116,299
Say	19,000,000	115,000
Branch Line to Trail		
Domestic and Commercial	699,000 (A)	7,122
Industrial	5,128,000	14,632 (C)
Unallocated	200,000	731 (B)
Total	6,027,000	22,485
Say	6,000,000	23,000

Note: (A) See following schedule for details.

(B) Considered as firm sales at a 75 per cent load factor. Actually a large part of industrial sales could be sold on an interruptible basis.

(C) Same as Note B except for one customer whose requirements are seasonal.

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Estimated Market for Natural Gas in the 5th Year (Mcf)

	Domestic			Commercial						
	Space-heat	General Use	Total	Space-Heat	General Use	Total	Total Sales	Unaccounted for	Total Send-Out	Maximum Day
Main Line to Spokane										
Whitefish, Montana,	75,100	7,400	82,500	24,700	16,500	41,200	123,700	6,200	129,900	1,340
Kalispell, Montana	226,400	21,900	248,300	74,400	49,700	124,100	372,400	18,600	391,000	4,037
Thompson Falls, Montana,	20,700	2,300	23,000	6,900	4,600	11,500	34,500	1,700	36,200	371
Wallace, Idaho,	52,400	5,700	58,100	17,500	11,600	29,100	87,200	4,300	91,500	940
Kellogg, Idaho,	87,600	9,500	97,100	29,200	19,400	48,600	145,700	7,300	153,000	1,572
Coeur d'Alene, Idao,	216,600	26,600	243,200	73,000	48,600	121,600	364,800	18,200	383,000	3,910
Spokane, Washington,	3,000,000	720,000	3,720,000	1,325,000	314,000	1,639,000(A)	5,359,000	268,000	5,627,000	58,061
Medical Lake, Washington,	20,000	2,000	22,000	180,000	120,000	300,000	322,000	16,100	338,100	2,970
Total -	3,698,800	795,400	4,494,200	1,730,700	584,400	2,315,100	6,809,300	340,400	7,149,700	73,201
Branch Line to Trail										
Deer Park, Washington,	19,500	2,400	21,900	6,600	4,400	11,000	32,900	1,600	34,500	352
Chewelah, Washington,	27,500	3,300	30,800	9,200	6,200	15,400	46,200	2,300	48,500	495
Colville, Washington,	56,900	6,500	63,400	19,000	12,700	31,700	95,100	4,800	99,900	1,023
Rossland, Britich Columbia,	74,400	9,700	84,100	25,200	16,800	42,000	126,100	6,300	132,400	1,348
Trail, British Columbia,	215,500	28,100	243,600	73,100	48,700	121,800	365,400	18,300	383,700	3,904
Total -	393,800	50,000	443,800	133,100	88,800	221,900	665,700	33,300	699,000	7,122

Note: (A) Includes 1,000,000 Mcf. to Large Commercials.

The second page of the statement gives detailed support of the estimate for domestic and commercial sales, showing for each location the domestic, broken down between space-heating, general use and total; the commercial broken down between space-heat, general use and total; the total sales, the unaccounted for, total send-out, and the estimated maximum day. It shows the total sales on the system, the total estimated sales in the fifth year. The maximum day would be 129 Mcf on the main line, 129,000 Mcf, and 23,000 Mcf on the branch line to Trail.

Q Your total load is 25 billion in the fifth year?

A That is right.

Q And this is based upon exhibit 5, with a slightly increased demand in the third, fourth and fifth years than set out by Dr. Hetherington in exhibit 5?

A That is right.

THE CHAIRMAN: Anyone wish to question Mr. Sample?

CROSS-EXAMINATION BY MR. MACLEOD:

Mr. Chairman, I have one or two questions.

Q I would like to ask you, with reference to the Montana Power, to the Montana Power System, they were made before the circumstance arose which gave rise to the statement I made this morning?

A That is right.

Q And any statement with regard to that would be modified accordingly?

A Yes.

THE CHAIRMAN: Any other questions?

EXAMINATION BY DR. GOVIER:

Q DR. GOVIER: Mr. Sample, do you happen to have information on the cost of manufactured gas in the Spokane area on a million B.T.U. basis?

A I do not recall offhand. It may be in the exhibit of the Spokane Gas and Fuel, otherwise I do not have it with me.

Q And what is the over-all load factor of this entire project? Have you got that worked out for the fifth year of operation?

A I would have to work it out, Dr. Govier. Considering all the industrial sales as firm sales it would be about 49½%.

Q I notice, Mr. Sample, the space-heating load factor of 23% seems very, very low. Is there some unusual circumstance in this area which would give rise to that?

A It is cold weather, that is all.

Q The degree-days are less than those of Calgary?

A That is right. The degree-days are, throughout the largest part of the area, in Spokane 6,356, as compared to between 8,000 and 9,000 for Calgary.

Q The peak days must be proportionately more severe?

A Well, as I pointed out, I have computed that on the basis of temperature at which the heating engineers designed for heating, which is a rather severe calculation, but that is what I have used, because I do not have information as to long range figures on the average temperatures and the coldest days, such as I had on the West Coast.

Q Did you have any load factor information from the manufactured gas system in Spokane?

A We have from their submission. I do not recall it, but it is very low.

Q Do you believe it would be on the same order as this 23% that you have given?

A I would have to check that on the heating load. I have not done so.

Q Thanks, Mr. Sample.

MR. MILVAIN: I wonder, Mr. Chairman, if I might ask the witness a question or two?

THE CHAIRMAN: Yes.

CROSS-EXAMINATION BY MR. MILVAIN:

Q Mr. Sample, I am looking at page 2 of your submission that you have just read and you say:

> "Along the proposed pipe line route and in the metropolitan area of Spokane I located several large industries which are potential users of gas for fuel. These industries include zinc and lead smelters, aluminum plant, cement plant, brick and refractory materials plants, paper mills,"

etc. Now, have you made an analysis as to the number of those industries, what the number is? You say there are some. How many are there?

A I think I pointed out there are about 15 large industries.

Q And do you know what the names of those concerns are?

A Oh, certainly.

Q Can you tell this Board?

A In Idaho there is the Bunker Hill and Sullivan Mining Company at Kellogg. In the Spokane area there are two plants, the Kaiser Aluminum Company. There is the Washington Brick and

Tile Company, and there is the Spokane Portland Cement the Pacific Northwest Alloys Company. There is the Phillips Petroleum Refinery in Spokane, or just on the outskirts, the Inland Paper Company, the Great Northern Railroad shops. On the line to Trail is Northwest Magnesite Company at Chewelah, the Washington Brick and Lime Company at Clayton, the Lehigh Portland Cement Company at Metaline Falls, and the Consolidated Mining and Smelting Plant at Trail, B.C. Those are the principal large ones. There are a number of small ones.

Q And can you give us the requirements of those plants you have just mentioned?

A Not individually. It was received in confidence.

Q But you cannot give us individual figures for each prospective plant?

A No.

Q And at the present time what type of fuel are these plants using, do you know?

A Yes, in every case I have that information. They are using generally oil of various grades and coal. Some of them may be using some hog fuels.

Q And in the event of gas being supplied, would that gas be used for space heating, boiler heating, or just what?

A It would be used in a combination of uses for industrial classifications, some for boiler fuels, some for heat treating and in these aluminum companies in reducing the aluminum pig to rolling, and the cement manufacturers would use it for heat, and a certain amount of space heating.

Q Do you know what proportion of the gas to be supplied to

those industries would be used just for boiler heating?

A I haven't made that calculation.

Q Then, therefore, you don't also know what proportion would be used for the other categories?

A No, not for industrial use.

Q Or for furnaces in connection with these metal industries?

A No, I haven't worked that out in detail.

Q Now, on page 6 of your submission, Mr. Sample, in the paragraph that deals with "Unallocated market" you say:

"There is a possibility of supplying some gas to the Hanford Atomic Energy Plant."

Do you know how much would be supplied?

A No, that is the reason I state it that way. I know what the potential market is about.

Q I am just wondering, Mr. Sample, what that term "some gas" might mean?

A Well, I think my sentence would have had the same meaning if I said that there was a possibility of supplying gas to the Atomic Energy Plant.

Q What is the potential?

A The potential is somewhere between 7½ and 8 billion cubic feet a year.

Q And what kind of a line would be needed to supply that requirement?

A You mean . . .

MR. McDONALD: Does the question mean the kind and size of pipe?

Q MR. MILVAIN: Size and length of line?

A I haven't figured that out. It is not included in our map

of this project at the moment.

Q So that at the moment you do not know whether it can be supplied economically or not?

A That is right, that is why we haven't got it in our project.

Q This is just a little piece of hopeful guessing?

A No, it is more than that. It is definitely a possibility but we have not provided for it in our estimate at the moment.

Q I see. You speak of large commercial customers. How would you define a commercial customer?

A Well, ordinarily a commercial customer, I am not going to try and give you the A.G.A. definition exactly, but it is those business enterprises like restaurants, retail stores, large apartment houses, and hotels. That is the ordinary commercial classification.

Q They would be customers where the supply runs between some limits of consumption. What would those limits be?

A It would depend on the size. Take the City of Calgary here. Your Hudson's Bay Company would be a large user. They would vary tremendously.

Q I was wondering what these commercial customers were that you had in mind in this analysis, what they would be using?

A You are talking about . . .

Q In what category would they fall?

A You are talking about the ordinary commercial customers or the large ones?

Q Let us take the ordinary ones first.

A Well, I mean, I have referred to both of those here, and that is why I want to know what your question is.

Q Give it to us in both.

A The average for commercial users in this territory is about 345 Mcf. per year per customer. That would represent an average size.

Q Now, I am looking at page 8 of your submission, Mr. Sample, and you speak of the supply being on interruptible basis, if necessary, for economic reasons. By that do you mean competitive prices?

A Might be.

Q And what competitive prices did you have in mind meeting?

A I have said you can meet them by selling interruptible gas. There might be reasons or advantages for some of these companies to buy on a local basis to give additional capacity to take care of space heating and other sales.

Q And who would be placed on the interruptible basis, your largest industrials?

A Not necessarily. It would be those industrial users who for various reasons buy gas on an interruptible basis and maintain a standby service with other fuel to take care of their requirements in the peak.

Q In making your survey of the industries, did you discuss with them the question of their taking interruptible gas?

A I think undoubtedly that was done.

Q Do you know how they responded to it?

A Well, I think it is typical in most cases they would prefer to have firm gas but they are always willing to come along.

Q And in your discussions with them what difference in prices for firm gas and interruptible gas was given?

A I do not discuss the demand commodity range at this time.

Q Do you know what might be the difference?

A Well, I have not personally worked it out on this system.

Q You do not know what might be your reasonable difference in price of interruptible and firm gas?

A I have not made any calculation on this system so I would hesitate to say.

Q There would be some difference?

A Oh, there would be, there could be very substantial.

Q Do you know what the price of firm gas to the industry would be?

A Lest it be developed, I think the following witness could give it. I have forgotten the exact figure. It is in the range of 30 or 35 cents.

Q That information is coming through another witness?

A That is right.

CROSS-EXAMINATION BY MR. PORTER:

Q Mr. Chairman, if I may. I direct your attention to page 2 of your exhibit in the column "1950 Population". I notice that the only towns in Canada have a combined population of 16,890, is that right, Rossland and Trail?

A That is right.

Q So that of the total population of a quarter of a million to be served, less than 17,000 are in Canada?

A Of this Inland Empire line, yes.

Q Now, let us turn over to the sheet following page 8. You show total annual sales on the branch line to Trail of 6 billion and 27 million, and you show domestic and commercial, industrial and unallocated. Can you break those

down as between Canadian consumers and American consumers? That must be in your working papers.

A Your question is a little involved. If you will please repeat it. There are different factors here.

Q I just want a breakdown of them. Looking at page 2 you have five places to be served, three of them in Washington and two in British Columbia, then you go over to your exhibit under the title "Branch Line to Trail" and you show 6 billion. I would like to know how much of that 6 billion is to be consumed in Canada and for what purposes and what portion in the United States.

A On the second page of this statement showing detail of domestic and commercial sales in the two cities in British Columbia, Rossland and Trail, I again would hesitate to deal with any information on individual industrial consumers.

Q I want it as between Canada and the United States?

A There is only one customer in Canada.

Q We all know who it is so there is no secret about that. That is Smelters?

A My estimate included herein for the Consolidated Mining and Smelting is in line with Dr. Sutherland's evidence before this Board in an earlier Hearing.

Q How much is it?

A I have the Consolidated Mining and Smelting plant, I have 2 million 77 thousand Mcf.

Q 2 million and 77 thousand Mcf.?

A That is right.

Q That is a day?

A No, that is in the fifth year. That is the total annual sales.

Q Then coming back to this page, you have 5 billion 128 million annual sales in the fifth year on the branch line to Trail. Where do you sell the other 3 billion?

A To other cities along that line.

Q Well, now, tell us about those. You have got Deer Lodge, Deer Park, how much does it take? You have got Chewelah, how much does it take? You have got Colville, how much does it take? You have a combined population of about 6,000 people.

A The information with respect to domestic-commercial sales for each of those cities is shown on the second page. The information on industrial gas was obtained in confidence and I do not feel at liberty to reveal the estimated sales for any individual company except for the Consolidated Mining and Smelting, which was put in before this Board by an official of that company.

Q Let me put it to you this way. In the three towns on the branch line to Trail that are located in the State of Washington, it is your oath there is a market of 3 billion a year?

A That is correct.

Q That is correct. One-and-a-half times Trail?

A Yes.

Q So that there will only be 2 billion sold in Trail. Now then, the breakdown of your domestic and commercial is set out in the page following, the second page following

page 8?

A I would like to clear up your statement. You say only 2 billion will be sold in Trail. There is only 2 billion I have in my estimate in Trail. It is entirely possible there will be more sold.

Q I was wrong and you are right. Now, that 2 billion that goes into Trail, all displaces coal, does it not?

A Some displaces some coal and some oil.

Q And the oil is very small in relation to the total?

A That is correct.

THE CHAIRMAN: Proceed with the next submission, Mr. McDonald.

EXAMINATION BY MR. C.E. SMITH:

I have just one question.

Q The last table, Mr. Sample, your column "unaccounted for", would you give a brief explanation of what that means, please?

A That "unaccounted for" is the difference between what the local distribution company can sell and what it has to buy from the pipe line to take care of the losses through the distribution system.

Q Thanks.

WILLIAM B. POOR, recalled, already sworn, examined by Mr. McDonald, testified as follows:

Mr. Poor is to deal with the pipe line project of Inland Empire, transportation rates.

W. B. Poor,
Dir. Ex. by Mr. McDonald.

THE CHAIRMAN: Is that headed "Pipe Line Project to Inland Empire, Transportation Rates"?

MR. McDONALD: That is right.

Q Would you just refer to the exhibit and the table on the second page?

SUBMISSION, PIPE LINE PROJECT TO INLAND EMPIRE, TRANSPORTATION RATES, PUT IN AND MARKED EXHIBIT No. 52.

A Westcoast Transmission Company Limited

ESTIMATED TRANSPORTATION COST FOR NATURAL GAS

Pipe Line Project to Inland Empire

The attached Statement gives the estimated cost for the fifth year of operation for transporting natural gas from the Pincher Creek area to the Inland Empire markets.

Annual Operation and Maintenance

The annual operation and maintenance of pipe lines is estimated at $350 per mile.

Compressor Station operation and maintenance is estimated at $25.00 per horsepower.

Measuring and regulating station operation and maintenance is estimated at an average of $3,000 per station.

Administration and general expense approximates 50% of the total supervised departmental cash costs excluding taxes, plus $50,000.

Storage expense is estimated at 2¢ per Mcf per year.

Depreciation is taken at 3½% annually.

Income taxes are taken at 52% both in the

W. B. Poor,
Dir. Ex. by Mr. McDonald.

United States and Canada.

Interest deductions for the purpose of income tax computations are taken on the basis of capitalization of 75% debt with bond interest at 4%.

All references to money are in United States dollars.

There follows a statement of the estimated operating expenses in the fifth year of operation setting forth, first, the gas volumes in Mcf. I would like to note that there is a typographical error there wherein dollar signs appear before the numbers representing millions of cubic feet of gas.

Sales of 24,690 million Mcf., Compressor Fuel at 60 million cubic feet per year, Company use and unaccounted for 250 million, for a total of 25.billion cubic feet.

There follows a tabulation of the various items of Transportation Cost set forth by: Operation and Maintenance of Pipelines, Compressor Station, Measuring Stations, Compressor Fuel, Customer Billing and Accounting, Administration and General Expense, Storage Expense, Depreciation, General Taxes, Bond Interest, Income Tax, Net Income, for a total Transportation Cost of $5,613,000, or a Transportation Cost per Mcf. of 22.45 cents on a Depreciated Investment of $24,717,000, to produce a return of 8 per cent on the rate base.

THE CHAIRMAN: Mr. McDonald, have you got another copy of that exhibit?

MR. McDONALD: I am sorry, sir.

W. B. Poor,
Dir. Ex. by Mr. McDonald.

ESTIMATED OPERATING STATEMENT

Fifth Year of Operation

Gas Volumes - Mcf.	Fifth Year
Sales,	24,690
Compressor Fuel,	60
Company use and unaccounted for,	250
	25,000

Transportation Cost	
Operation and Maintenance	
Pipe Lines,	$ 190,000
Compressor Station,	25,000
Measuring Stations,	54,000
Compressor Fuel,	6,000
Customer Billing and Accounting,	10,000
Administration and General Expense,	190,000
Storage Expense,	500,000
Depreciation,	1,009,000
General Taxes,	288,000
Bond Interest @ 4%,	718,000
Income Tax @ 52%,	1,364,000
Net Income,	1,259,000
Transportation Cost,	$ 5,613,000
Transportation Cost per Mcf.,	22.45¢
Depreciated Investment,	$ 24,717,000
Per Cent Return	8%

Q This exhibit, again, is based on an operation of 25 billion. There is a dollar sign in the exhibit, Mr. Poor.

A I pointed that out, Mr. McDonald.

Q And this again correlates with Exhibit No. 5 and with the estimate of costs that you have already submitted?

A That is correct.

THE CHAIRMAN: Does anyone wish to question Mr. Poor?

CROSS-EXAMINATION BY MR. MILVAIN:

Might I ask Mr. Poor a few questions, Mr. Chairman.

Q You might tell us, Mr. Poor, now that the Montana Power seem to be backing out of the picture, who is to build this line, you people or somebody else?

A I do not know.

Q You do not know by whom the line is built?

A No. This is a statement of operating costs.

Q I was wondering whose costs they are?

A These costs?

Q Costs to whom?

A I do not understand you. You mean, who estimated them?

Q Here is an estimate as to cost. Who is it is expected to stand that cost?

A Whoever built it.

Q Whoever build it?

A Yes, if it is built.

Q So this has not been done with the idea in mind of any particular person building it at all?

A Oh, very definitely.

Q With some particular person building it?

A Some particular company.

Q Was there a cost analysis made of some particular concern?

A I do not believe I understand that what you are talking about.

Q You told the Commission and myself a moment ago that you had in mind some particular builder. Who is the builder?

A In this instance, if this project is built as set forth it will be built under the general supervision of Ford,

Bacon and Davis.

Q Yes. And at whose cost?

A At the cost of the Westcoast Transmission Company or its affiliates.

Q Now, has there been a calculation made of the cost of delivering gas at the gate to the consumer, industrial consumer?

A No. There is set forth only the average transportation cost per Mcf. for the entire project area.

Q There are a number of components that go to making up the cost of delivering to the customers?

A That is perfectly true and is as set forth.

Q Transportation costs as you have here, and there are many others, are there not?

A Many other what.

Q Items of cost?

A No.

Q What about the cost of the gas?

A That is not transportation cost.

Q It is a cost of transporting gas to the consumer?

A Yes.

Q And a very important thing?

A Quite so.

Q So you have transportation cost and cost of gas. Are there any other costs that go to make up the cost of gas to the consumer?

A None that I have contemplated.

Q How about maintenance?

A It is in there.

W. B. Poor,
Cr. Ex. by Mr. Milvain.

Q You have got the cost of gas?and transportation and also the cost of maintenance?

A If you read the statement under transportation cost, the first heading is Operation and Maintenance of (a) Pipelines, (b) Compressor Stations, (c) Measuring Stations.

Q Is this for the whole system?

A That is correct.

Q Right from well-head to customer?

A No, sir. From a common point in Pincher Creek field to the city gates.

Q City gates of where?

A Of various points contemplated for sale.

Q I see. The cost will vary at the different city gates?

A Oh, it could be so, yes.

Q In other words, if you are going to transport gas a long distance it will cost more than to transport it a short distance?

A Well, that is quite obvious, yes.

Q And if you are supplying gas at the end in small quantities --

THE CHAIRMAN: I can hardly hear Mr. Milvain at all. There is too much talking going on.

Q MR. MILVAIN: I say, the cost of supplying a small amount of gas at the end of a big line is much more expensive than supplying the same amount of gas at the end of a smaller line?

A That would depend on how you would figure it.

Q Well, wouldn't that generally be so?

A That would depend entirely on what the load factor is that you are operating your line on.

Q Well, just as a general proposition, would it not be perfectly true if you are going to supply a small amount of gas, a small quantity of gas at the end of a big line, that it is going to cost you more per unit than if you supply the same amount of gas at the end of a small line? Perhaps you do not agree with me?

A Was that a question or a statement?

Q Well, I am wondering whether that statement I make is true, or whether it is not?

A Well, I don't know. I would have to have some concrete figures here.

Q Oh, very good.

.....

CROSS-EXAMINATION BY MR. MACLEOD:

Q Mr. Poor, what was your item in your Table for the cost of storage based on?

A That is based on experience that we have had in other storage fields, and because of the rather limited quantities to be stored. We feel that it is an adequate figure at this time.

Q It is not based on any particular storage area?

A No, no.

Q All right.

Q DR. GOVIER: Mr. Poor, I wonder if you could tell me if the capital charge upon which the depreciation has been computed, whether that is consistent with Exhibit 49?

A If Exhibit 49 is the one that I presented on capital costs, the answer if "Yes".

MR. McDONALD: That is right.

Q DR. GOVIER: I think that is the one, on page 1 of Exhibit 49, which is the summary, the total capital cost is given as $28,800,000.00 odd?

A Yes.

Q And the figure of $24,700,000.00 odd is the figure which results from the application of 5 years' depreciation to the $28,000,000.00?

A That is correct.

Q Can you tell me also, Mr. Poor, whether the first figure I referred to, $28,000,000.00 some, includes the capital cost on the storage line to the Cut Bank field?

A Yes, it does.

Q And the item of 2 cents per Mcf. year for storage expense, is that merely an operating expense for storage?

A No, that is the operation, rental and maintenance.

Q And I notice that you have applied the 2 cents per Mcf. to the total annual volume, is that correct? I mean, have I interpreted your figures correctly, Mr. Poor?

A No, you picked out a good one there. That is obviously incorrect because of the gas sold that is not stored.

Q That is what I was wondering about.

A That is correct. That figure must be something less than that, to the extent of the volumes to be stored.

Q Your intention was to apply the 2 cents to the amount of gas which entered and was withdrawn from the storage field?

A That is correct.

Q So that you would wish, perhaps, to revise that figure later, Mr.Poor, would you?

A That should be revised in order to give a correct amount.

Q MR. McDONALD: If I might intervene, the item of $500,000.00 is going to give you the cost of the transportation to storage and out. It also will be applied in paying the fee required, the rental of the storage field, the installation of pumping equipment, and drilling the storage wells, if necessary?

A That is correct.

Q And a great many other items?

A Well, it cannot cover the capital cost, Mr. McDonald.

Q No?

A It is just a carrying charge on the capital cost.

Q That is right. That would be the $500,000.00?

A Yes, but that is 2 cents per Mcf on gas in and out of storage.

Q DR. GOVIER: Mr. Poor, perhaps you can take another look at that, and if there is any change you might let us know?

A I will so do.

Q Thank you.

.....

CROSS-EXAMINATION BY MR. S.B. SMITH:

Q Mr. Poor, can you tell me what load factor was used by you in computing your transportation cost to the 22.45 cents per Mcf?

A I believe that load factor was slightly under 50%.

MR. McDONALD: 75%, running into storage.

A Well, yes, on that basis.

Q MR.S.B. SMITH: Now, you are talking about eliminating completely the Cut Bank storage, that is correct, isn't it?

A That has been the conversation, yes.

Q And you would also then eliminate the sale to the Montana Power system of 4 billion per year, I think it is, in the fifth year operation?

A No, I don't know that I would.

Q Well, I don't know either, I am asking you?

A I am merely making representations on the basis set forth herein. I am in no position to contemplate what might be done some time in the future.

Q Should you get another contract with Montana Power?

A That is correct.

Q But you have not got any contract with Montana Power now?

A No.

Q Now if we eliminate the 4 billion to the Montana Power, if we eliminate the Cut Bank storage, what would that do to your load factor?

A It would reduce the load factor.

Q Would it increase or decrease your transportation cost per Mcf.

A With only reducing the load factor, it would increase the transportation costs.

Q Quite substantially, if you eliminate it?

A It would increase it.

Q Very substantially, wouldn't it?

A It would increase it.

Q I say substantially?

A I am not going to answer that because I do not know until I go into the revised statement.

Q Well, you reduce your annual sales, assumung you reduce them by 4 billion, you reduce your load factor, and can't you give me any idea as to how much your transportation costs will be increased? You do not wish to commit yourself?

A No, I do not, because there are other things that can be done.

Q Yes. Well, I am, of course, working on the basis of the figures which you have here, which you have put before us. Would you go so far as to say that your transportation costs on these figures would be increased substantially if you eliminate your Cut Bank storage and you eliminate your sales to Montana?

A Yes, I agree it would increase the costs. Let us be fair about this thing, if we are going to take out gas in storage and Montana Power's requirements, then it is always entirely possible to go into additional interruptible loads which would tend to bring the load factor back up to that which it was before.

Q Yes, but the probability is that your transportation costs would go up quite a lot, Mr. Poor?

A Well, to that I cannot entirely subscribe. I do not know what the answer would be.

Q You do not know?

A No.

MR. McDONALD: That, Mr. Chairman, concludes the submissions I have at this time of the Pincher Creek situation, and the inland empire market.

Q Where do we get that inland empire? Is that of general use, or is that one of yours, Mr. McDonald? It is a nice name.

MR. McDONALD: That is a name that originated, I think, in Spokane. It generally describes the area.

MR. C. E. SMITH: I see.

MR. McDONALD: I might say, sir, that this evidence submitted is submitted having regard to the statements made by Mr. Macleod and myself during the course of this morning.

THE CHAIRMAN: Do we understand, Mr. McDonald, that this storage project will be completely out now?

MR. McDONALD: No, I wouldn't go that far, sir. As I say, the engineering has been investigated and the submission is in the course of preparation. Now, just exactly what I am going to do with that in the course of the week I am not prepared to say at this time.

MR. C. E. SMITH: Will somebody tell me what Mr. Macleod said again briefly? You and he are fighting, is that the idea, Mr. McDonald?

MR. McDONALD: In a way.

MR. C. E. SMITH: O.K.

DR. GOVIER: Mr. McDonald, does this mean for the time being that while we have Exhibit 52 before us, giving the transportation costs, we do not know whether these are the right costs or not, for the time being?

MR. McDONALD: Yes. This exhibit is based on the 4 billion feet of sales to the Montana Power people and storage of approximately 2½ to 3 billion a year, in order to maintain the load factor at 75%. Now, if

the arrangements with Montana Power are not carried through, then we will have to reconsider our position, and how we can deal with it, having regard to the fact that we have not got this load.

DR. GOVIER: Are we to take it from your statement and from Mr. Macleod's statement earlier this morning, that it is to be interpreted that the arrangements with the Montana Power Company will not be carried through?

MR. McDONALD: That is what he said, sir.

MR. C. E. SMITH: Well, does he say that they won't even look at you?

R. McDONALD: The situation was stated at 9.30 this morning. I have no other comment on it.

DR. GOVIER: Well, Mr. McDonald, I am very confused, and perhaps you can straighten me out sooner or later?

MR. McDONALD: I will do my best.

MR. MACLEOD: The whole matter is that the agreement has been abrogated by my learned friend's clients.

MR. C. E. SMITH: What agreement? I have not seen any agreement between the two of you? Let us have some evidence if this is of interest.

MR. McDONALD: I do not think, sir, that I can usefully discuss it any further.

THE CHAIRMAN: Not unless you and Mr. McDonald are prepared to get up on the stand.

MR. McDONALD: I have another submission now, sir, entitled "Pipe Line Project to Pacific Northwest, Transpotation Rates."

THE CHAIRMAN: Mr. McDonald, that submission is

entitled "Pipe Line Project to Pacific Northwest, Transportation Rates"?

MR.McDONALD: Yes, sir.

THE CHAIRMAN: Exhibit 53.

SUBMISSION ENTITLED "PIPE LINE PROJECT TO PACIFIC NORTHWEST, TRANSPORTATION RATES" submitted by Westcoast marked Exhibit 53.

Q MR. McDONALD: Mr. Poor, if you will now deal with Exhibit 53?

A Westcoast Transmission Company Limited.
Westcoast Transmission Company Limited.

ESTIMATED TRANSPORTATION COST FOR NATURAL GAS

Pipe Line Project to Pacific Northwest

The attached Statements A, B and C are estimated operating statements as follows, showing the average cost for the first five-year operating period and for the fifth year for transporting natural gas from the Peace River area of Alberta to Canadian and United States markets in the Pacific Northwest:

Statement A: Estimated Operating Statement for Gathering System.

Statement B: Estimated Operating Statement for Transmission system.

Statement C: Estimated Operating Statement for Gathering and Transmission System with Accelerated Market Demand.

The attached Statement D shows the effect of load factor on possible field and selling prices for the fifth year of operation.

Annual Operating Cost

The gas purchases and sales expense for the Gathering System is estimated at $20,000.00 while customers' billing and accounting expense is estimated at $5,000.00 for the Gathering System and $20,000.00 for the Transmission System.

The annual operation and maintenance of pipe lines is estimated at $300.00 per mile for the Gathering System in Alberta, at $500.00 per mile for the Transmission System in Canada, and at $300.00 per mile for the Transmission System in the United States. Compressor Station operation and maintenance is estimated at $15.00 per horsepower.

Masuring the Regulating Station operation and maintenance is estimated at an average of $3,000.00 per station.

Administrative and General Expense is estimated on the basis of average natural gas company experience in the United States and approximates 50 per cent of supervised departmental cash costs plus $50,000.00.

General Taxes are estimated at 1/2 per cent annually and Depreciation is taken at 3 per cent annually.

Income Taxes, including Provincial Income Tax, are taken at 52 per cent both in the United States and Canada. Bond interest deduction for the purpose of income tax computations are taken on the basis of capitalization of 75 per cent debt with bond interest at 4 per cent.

Return is given in these statements as a percentage of Depreciated Investment, which item includes an allowance

for Working Capital.

All references to money are in United States dollars.

Price of Gas

The field purchase price of gas is calculated on the basis of an increasing rate giving 10 cents per Mcf for gas delivered during the fifth year of operation and giving an average of 12 cents per Mcf for the first 20 years of operation of the pipe line.

Selling Price

Selling prices used in the attached statements are average prices of 35 cents, 36 cents, and 37 cents per Mcf for gas delivered at the city gates in the market area to be served.

Increased Taxes and Duties

Income taxes in both Canada and the United States have increased in recent months from 38 per cent to approximately 52 per cent, which latter rate is used in the attached statements. Sales Taxes in Canada have similarly increased from 8 to 10 per cent.

Total construction cost of the project includes Canadian import duties and Dominion and Provincial Sales Taxes in the amount of $4,674,300.00 as follows:

Total Construction Cost before Taxes and Duties	$88,538,400
Dominion and Provincial Sales Taxes and Import Duties	4,674,300
Total Construction Cost	$93,212,700

Of the projects for which applications are before the Board, only the project of the Westcoast Transmission Company employs an All-Canadian route, with the major portion of pipe line mileage and pipe line investment in Canada. Accordingly this cost item for Canadian Import Duties and Sales Taxes is applicable to more than 75 per cent of the Westcoast Transmission Company project.

Accelerated Market Demand

In the practice of estimating natural gas requirements for communities in the Unites States presently served with manufactured gas and to be converted to natural gas, historically the prior market estimates have understated the actual amount of natural gas that could be marketed, particularly in the domestic and commercial classifications. Because of lower cost and the superiority of natural gas as a fuel, the consumer demand usually is greater than foreseen prior to the introduction of natural gas.

Natural gas pipe lines recently completed in the United States generally involved capacity increases to meet the growing demand for natural gas before the original lines were completed. In the case of Michigan-Wisconsin Pipe Line, completed in November, 1949, the estimate of

fifty-year loads was reached this year, in 1951, and would have been exceeded had not bans on space-heating installations been imposed in Michigan in May of 1950, and later by the Petroleum Administration for Defense in the entire service area. In the case of other pipe line companies, the demand has exceeded estimates to the extent that allocation of pipe line capacity is required in some instances.

In recognition of this historical trend in demand for natural gas, it is conceivable that Pacific Northwest Markets may increase more rapidly than estimates if a supply of gas is available. The attached Statement C gives the Estimating Operating Statement for the Gathering and Transmission System, assuming anaccelerated market demand such that the estimated fourth-year load is reached in the second year and the estimated fifth-year load is reached in the third year. The cost of Gathering and Transportation for the fifth-year of operation and for the average of the first five years of operation is given based on this accelerated market demand.

Effect of Load Factor

The attached Statement D shows the effect of load factor in reducing the selling price of gas or in increasing the field price of gas. Statement D is applicable to the fifth year of operation.

If the system load factor can be increased to 100 per cent from the presently estimated 76.5 per cent, the selling price can be reduced from 35.0 to 29.4 cents per Mcf, or, alternately, the fifth year field price can be increased from 10.0 to 15.4 cents per Mcf.

Q If you would now deal with Statement A, Mr. Poor?

A There follows Statement A, the estimated operating statement for gathering system, Fifth year of operation and Average of first five years. In Items 1 to 4 we set forth the Gas Volumes in millions of cubic feet, broken down as between Sales at the Canadian border, compressor fuel, Company use and unaccounted for, giving the total of Item 4, Field Purchases, for the fifth year of operation, and for the average of the first five years.

In a like manner the field cost of gas for the fifth year is set out at 10 cents, and the average for the first five years of 8.8 cents. Item 6 is the dollar expenditure for gas. There follows Items 7 to 15 inclusive, the Gathering Cost of gas, broken down as between Gas purchases and selling expense, customers' billing and accounting, operation and maintenance, Pipe lines, compressor stations, measuring stations, administrative and general expense, general taxes, depreciation at 3%, and then in Item 15 the total before income taxes and return. Item 16 assumes the selling price at the Alberta Border per Mcf of 13 cents; Item 17 gives the annual revenue at 13 cents; Item 18 is the utility income before income taxes. Item 19 is the bond interest at 4%. Item 20 is the net tax income. Item 21, income taxes at 52%. Item 22, net income. Item 23, depreciated investment in the fifth year and for the five-year average; Item 24 the return on the depreciated investment or rate base, and Item 25 the Gathering Cost per Mcf of 3 cents per Mcf in the fifth year, and 4.2 cents for the average of the first five years.

W. B. Poor,
Dir. Ex. by Mr. McDonald

Statement A

ESTIMATED OPERATING STATEMENT FOR GATHERING SYSTEM

Fifth Year of Operation and Average of First Five Years

		Fifth Year	Five-Yr Average
	Gas Volumes - MMcf		
1	Sales at Alberta Border	66,077	47,728
2	Compressor Fuel	426	311
3	Company Use and Unaccounted for	319	232
4	Field Purchases	66,822	48,271
	Field Cost of Gas		
5	Per Mcf	10.00¢	8.8¢
6	Per Year	$ 6,682,000	$ 4,261,400
	Gathering Cost		
7	Gas Purchases and Selling Expense	$ 20,000	$ 20,000
8	Customers Billing and Accounting	5,000	5,000
	Operation and Maintenance:		
	Pipe Lines	63,000	63,000
10	Compressor Stations	105,000	92,400
	Measuring Stations	24,000	24,000
12	Administrative and General Expense	158,000	151,800
13	General Taxes @ 1/2%	62,000	60,800
14	Depreciation @ 3%	372,000	365,400
15	Total before Income Taxes and Return	$ 809,000	$ 782,400
16	Selling Price at Alberta Border per Mcf	13.00¢	13.00¢
17	Annual Revenue	$ 8,590,000	$ 6,204,600
18	Utility Income before Income Taxes	$ 1,099,000	$ 1,160,800
19	Bond Interest @ 4%	295,400	327,300
20	Net Tax Income	$ 803,600	$ 833,500
21	Income Taxes @ 52%	417,900	433,400
22	Net Income	$ 385,700	$ 400,100
23	Depreciated Investment	$10,881,000	$11,401,000
24	Return - Per Cent	6.26%	6,38%
25	Gathering Cost per Mcf	3.0¢	4.2¢

Q Now, Mr. Poor, the depreciated investment is the depreciated investment with regard to the gathering system that you have set up in your previous exhibit, the main line system in Canada?

A That is correct.

Q And that includes an investment in the Grande Prairie market line of $960,000.00?

A Yes.

Q Then your average price of 8.8 cents is worked out on what basis between the first year and the fifth year?

A Between the first year and the fifth year that is worked out on the basis of a purchase price of 7 cents for gas in the first year, increasing at the rate of 3/4 of 1 cent annually to 10 cents in the fifth year.

Q Yes? If you will go on now to Statement B?

A Statement B is the estimated operating statement for transmission system, fifth year of operation, and average of first five years. This statement is set out on two pages, the first page being the fifth year of operation. In an effort not to be repetitious, this statement is set up throughout with the same general categories as set forth in the operating statement for the gathering of gas.

The selling price at the market, however, Item 15, had been set up on three bases of 35, 36 and 37-cent gas, which results in Item 24, the transportation costs per Mcf in the fifth year of 22 cents, 23 cents and 24 cents, and the rate of return on the depreciated investment in the fifth year of 7.55%, 7.98%, and 8.41%.

Statement B, page 2 of 2, is a like statement for the average of the first five years of operation. This statement, again, shows the transporta-

tion cost of gas fixed at 22 cents, 23 cents, and 24 cents, which produced on the average depreciated investment and rate of return respectively of 5.40%, 5.71% and 6.01%.

Statement B
Page 1 of 2

ESTIMATED OPERATING STATEMENT FOR TRANSMISSION SYSTEM

Fifth Year of Operation and Average of First Five Years

		Fifth Year		
	Gas Volumes - MMcf			
1	Sales at Markets	63,789		
2	Compressor Fuel	1,650		
3	Company Use and Unaccounted For	638		
4	Gathered Purchases	66,077		
	Purchase Cost of Gas			
5	Per Mcf	13.0¢		
6	Per Year	$ 8,590,000		
	Transportation Cost			
7	Customers Billing and Accounting	$ 20,000		
	Operation and Maintenance:			
8	Pipe Lines	508,200		
9	Compressor Stations	564,000		
10	Measuring Stations	69,000		
11	Administrative and General Expense	631,100		
12	General Taxes @ 1/2%	404,100		
13	Depreciation @ 3%	2,424,500		
14	Total before Income Taxes and Return	$ 4,620,900	$ 4,620,900	$ 4,620,900
15	Selling Price at Markets - per Mcf	35.0¢	36.0¢	37.0¢
16	Annual Revenue	$22,326,000	$22,964,000	$23,602,000
17	Utility Income before Income Taxes	$ 9,115,100	$ 9,753,100	$10,391,100
18	Bond Interest @ 4%	1,914,000	1,914,000	1,914,000
19	Net Income	$ 7,201,100	$ 7,839,100	$ 8,477.100
20	Income Taxes at 52%	3,744,600	4,076,300	4,408,100
21	Net Income	$ 3,456,500	$ 3,762,800	$ 4,069,000
22	Depreciated Investment	$71,156,000	$71,156,000	$71,156,000
23	Return - Per Cent	7.55%	7.98%	8,41%
24	Transportation Cost per Mcf	22.0¢	23.0¢	24.9¢

W. B.Poor,
Dir.Ex. by Mr. McDonald

Statement B
Page 2 of 2

ESTIMATED OPERATING STATEMENT FOR TRANSMISSION SYSTEM

Fifth Year of Operation and Average of First Five Years

			Five-Year Average	
	Gas Volumes - MMcf			
1	Sales at Markets		46,468	
2	Compressor Fuel		795	
3	Company Use and Unaccounted For		465	
4	Gathered Purchases		47,728	
	Purchase Cost of Gas			
5	Per Mcf		13.0¢	
6	Per Year	$ 6,204,600	$ 6,204.600	$ 6,204,600
	Transportation Cost			
7	Customers Billing and Accounting		20,000	
	Operation and Maintenance:			
8	Pipe Lines		508,200	
9	Compressor Stations		309,600	
10	Measuring Stations		69,000	
11	Administrative and General Expense		483,500	
12	General Taxes @ 1/2%		389,300	
13	Depreciation @ 3%		2,336,200	
14	Total before Income Taxes and Return	$ 4,115,800	$ 4,115,800	$ 4,115,800
15	Selling Price at Markets - per Mcf	35.0¢	36.0¢	37.0¢
16	Annual Revenue	$16,263,800	$16,728,500	$17,193,200
17	Utility Income before Income Taxes	$ 5,943,400	$ 6,408,100	$ 6,872,800
18	Bond Interest @ 4%	2,089,200	2,089,200	2,089,200
19	NetTax Income	$ 3,854,200	$ 4,318,900	$ 4,783,600
20	Income Taxes @ 52%	2,004,200	2,245,800	2,487,500
21	Net Income	$ 1,850,000	$ 2,073,100	$ 2,296,100
22	Depreciated Investment	$72,949,000	$72,949,000	$72,949,000
23	Return - Per Cent	5.40%	5.71%	6.01%
24	Transportation Cost per Mcf	22.0¢	23.0¢	24.0¢

Statement C, Estimated Operating Statement for Gathering and Transmission System with Accelerated Market Demand, Fifth Year of Operation and Average of First Five Years, the sole purpose of this Statement is to reflect particularly the witness's feeling based on experience of the understatement of most market estimates, as provided by the local distributing company. If this thinking be true, and the acceptance of gas were accelerated in the manner herein set out, with an average selling price at all markets of 35 cents, for the fifth year of operation, and for the average of the first five years, the rate of return would have increased to 7.44 cents in the fifth year, and to 6.31 cents in the average of the first five years.

Q Per cent, Mr. Poor, not cents.

A Per cent, sorry. The Gathering and Transmission cost in the fifth year would be 25 cents per Mcf, and the average for the first five years 25.42 cents.

Q Just to make it clear, Mr. Poor, your statement B refers to the transportation costs from the main line terminus at almost the border of British Columbia, in Alberta, down to and including the main line as far south as Portland?

A That is correct.

Q And then in your Statement C, you have combined the gathering costs in Alberta and the transportation costs to make this Statement C?

A That is correct.

Q So that the item of 25.cents in the fifth year, gathering and transportation costs per Mcf, is contrasted to the total of A and B?

A That is right.

W. B.Poor,
Dir. Ex. by Mr. McDonald

Statement C

ESTIMATED OPERATING STATEMENT
FOR GATHERING AND TRANSMISSION SYSTEM
WITH ACCELERATED MARKET DEMAND

Fifth Year of Operation and Average of First Five Years

	Fifth Year	Five-Yr Average
Gas Volumes - MMcf		
Sales at Markets	63,789	54,807(A)
Compressor Fuel	2,076	1,587
Company Use and Unaccounted For	957	822
Field Purchases	66,822	57,216
Field Cost of Gas		
Per Mcf	10.0¢	9.58¢
Per Year	$ 6,682,200	$ 5,481,700
Gathering and Transportation Cost		
Gas Purchases and Selling Expense	$ 20,000	$ 20,000
Customers Billing and Accounting	25,000	25,000
Operating and Maintenance:		
Pipe Lines	571,200	571,200
Compressor Stations	669,000	550,800
Measuring Stations	93,000	93,000
Administration and General Expense	789,100	730,000
General Taxes @ 1/2%	466,100	456,000
Depreciation @ 3%	2,796,500	2,735,900
Total before Income Taxes and Return	$ 5,429,900	$ 5,181,900
Selling Price at Markets per Mcf	35¢	35¢
Annual Revenue	$22,326,200	$19,182,500
Utility Income before Income Taxes	$10,214,100	$ 8,518,900
Bond Interest at 4%	2,282,000	2,503,200
Net Tax income	$ 7,932,100	$ 6,015,700
Income Tax at 52%	4,124,700	3,128,200
Net Income	$ 3,807,400	$ 2,887,500
Depreciated Investment	$81,856,600	$85,428,900
Per Cent Return	7.44%	6.31%
Gathering and Transportation Cost per Mcf	25¢	25.42¢

Note: (A) Sales for accelerated market demand taken at:

First Year:	24,206 Mcf
Second Yr.:	58,464 "
Third Year:	63,789 "
Fourth Yr.:	63,789 "
Fifth Year:	63,789 "

Q All right?

A Statement D sets forth the effect of load factor on possible field and sales prices of gas in the fifth year of operation. The load factors have been set up by way of example on 76.5%, 80%, 90% and 100%. The gas volume has been set out, commensurate with the load factors, and there is given the effect of a load factor in reducing selling prices of gas. Assuming the field costs of gas at 10 cents per Mcf, that would result respectively in the 35 cents for 76.5% load factor, 34 cents for 80% load factor, 31.4 cents for90 % load factor, and 29.4 cents for 100% load factor.

Now, turning it around the other way, and setting forth the result in the field price of gas, or assuming an accelerated or increased field price for gas, as the load factor increases, with a 10 cent field price of gas at a 76.5% load factor, would result in 11-cent gas for 80% load factor, 30.4 cents for 90% load factor, and 15.4 cents for 100% load factor.

Q Yes. The item is 13.4 cents, not 30.4?

A 13.4, I beg your pardon.

Q Yes. And the volumes and the costs that you have set out in this Statement D are based on the costs of the line as submitted?

A That is correct.

Q And the transportation costs as set out in A, B and C?

A That is correct.

Q Or A and B, I mean, not C?

A Yes.

W. B. Poor,
Dir.Ex. by Mr. McDonald

Statement D

EFFECT OF LOAD FACTOR ON POSSIBLE FIELD AND SALE PRICES

Fifth Year of Operation

	Load Factor			
	76.5	80.0	90.0	100.0
Gas Volumes - MMcf				
Sales at Markets	63,789	66,664	74,997	83,330
Compressor Fuel	2,076	2,270	2,860	3,540
Company Use and Unaccounted For	957	1,000	1,123	1,250
Field Purchases	66,822	69,934	78,980	88,120
Effect of Load Factor in reducing Selling Prices of Gas				
Field Cost of Gas @ 10¢ per Mcf	$ 6,682,000	$ 6,993,000	$ 7,898,000	$ 8,812,000
Total Other Costs	15,644,000	15,644,000	15,644,000	15,644,000
Total All Costs	$22,326,000	$22,637,000	$23,542,000	$24,456,000
FieldCost of Gas @ 10¢ per Mcf	10.0¢	10.0¢	10.0¢	10.0¢
Gathering and Transmission Cost per Mcf	25.0	24.0	21.4	19.4
Resulting Selling Price per Mcf	35.0¢	34.0¢	31.4¢	29.4¢
Effect of Load Factor in Increasing Field Price of Gas				
Revenue for Selling Price of 35¢ per Mcf	$22,326,000	$23,332,000	$26,249,000	$29,166,000
Total Costs except Gas Purchases	15,644,000	15,644,000	15,644,000	15,644,000
Total Available for Gas Purchases	$ 6,682,000	$ 7,688,000	$10,605,000	$13,522,000
Selling Price of Gas @ 35¢ per Mcf	35.0¢	35.0¢	35.0¢	35.0¢
Gathering and Transmission Cost per Mcf	25.0	24.0	21.6	19.6
Resulting Field Price per Mcf	10.0¢	11.0¢	13.4¢	15.4¢

THE CHAIRMAN: We will adjourn for a few minutes.

(Hearing resumed after short adjournment).

(Go to page 1650)

Q MR. McDONALD: Mr. Poor, in exhibit 53 by the use of the fixed prices as to purchase price and to sales price, you have indicated, used an illustration in your submission, of what the actual results would be?

A That is correct.

Q If these prices were applied?

A If these prices were applied.

CROSS-EXAMINATION BY MR. NOLAN:

Q Just one question of Mr. Poor, if I may, Mr. Chairman, to explain one or two small matters to me.

Mr. Poor, looking at your Pacific Northwest exhibit, which is 53, you use, you see, a depreciation rate of 3%, and looking at your Inland Empire exhibit, which is number 52, I observe that you use a depreciation rate of 3½% annually. Why is there a difference in the depreciation rate as between those two systems?

A The difference, Mr. Nolan, is that the project to the Inland Empire was conceived as having a fixed contract life as opposed to an indefinite, and I hope much longer, life for the Pacific Northwest.

Q You say the Inland Empire system had a definite life?

A That is correct.

Q What do you mean by that?

A I mean by that it was based on the intent of a fixed limited life contract.

Q What is that?

A Pardon?

Q What is the limit?

MR. McDONALD: Twenty.

A Twenty year life for the contract.

Q MR. NOLAN: Well, then, if it is a limited period like that, wouldn't it be higher than 3½%, Mr. Poor?

A No, I do not think so.

Q Well, I would have thought that the fact that you only had a twenty year life you would have used a higher depreciation figure than 3½%. Do you agree with that?

A No, because I think the feeling there is that all you have got to do is depreciate under the gas purchase contract to the extent of your bond issue. In all probability other gas purchase contracts could and would be made to extend the life of the property.

Q Well, anyway, that is your reason for using 3½% in the one instance and 3% in the other?

A That is correct.

Q Now, I notice your exhibit 53, Mr. Poor. You talk about the price of gas, the field purchase price of gas, and I think you told Mr. McDonald that the first year that price was 7 cents?

A That was the assumption, yes, sir.

Q And that it increased, did I understand you to say, a quarter of a cent per year?

A No, three-quarters of a cent.

Q Three-quarters of a cent until in the fifth year it reached ten cents?

A That is correct.

Q Is that gas under contract, Mr. Poor? Have you a contract for gas at 7 cents?

A I cannot answer that question, I do not know.

Q Perhaps Mr. McDonald could tell us?

MR. McDONALD: Yes, Mr. Nolan, I have a submission with regard to contracts I will file.

MR. NOLAN: And will there be something brought before the Board to indicate the price of gas to the distributor?

MR. McDONALD: Yes, it will be included.

Q MR. NOLAN: Then I was going to ask you, Mr. Poor, about your load factor on Statement "D" of exhibit 53. You start with the figure of 76.5% and it goes up to 80 and 90 and 100. Are there some places where you have a load factor of 100%?

A I know of none, Mr. Nolan.

Q Why do you put that in?

A We put the last three figures in specifically by way of example to show what the trend is.

Q Have you any figures to show how the field price and the selling price of gas would be affected if your load factor were 70%?

A No, I have not prepared those figures.

Q Then am I right that in your Inland Empire scheme, you have a percentage of return of 8%? That is right, isn't it?

A That is correct.

Q Well, now, what is the return in the Pacific Northwest line? It varies, does it not?

A It varies in the manner in which it is set up here, yes.

Q Well, then, how do we arrive at a rate of return for the whole of the operation, or do we?

A You mean by that the combination of the two?

Q Yes?

A No attempt has been made to do that.

Q So we have 8% and 7.55 going up to 8.41 in Statement "B". In Statement "B" we have 7.44 dropping to 6.31. Now, so far as the selling price to the distributors is concerned, Mr. Poor, you have taken the prices, I see, at the top of page 3 of exhibit 53. "Selling prices used in the attached statements are average prices of 35 cents, 36 cents and 37 cents." Were you here when the distributors gave evidence, Mr. Poor?

A I expect I was.

Q Well, perhaps I could refresh your memory. Do you remember them saying that if the price of gas went above 33 cents per Mcf that their estimate of the market would be very much lower?

A I think they did say that.

Q Well, have you taken that into account in estimating the market?

A Yes, because I do not believe them.

Q You take the position that has been taken by Mr. Sample, that they do not know what their market is?

A From a practical matter, yes, sir, that is the way I feel.

Q In other words, you say they are underestimating?

A Yes, sir.

Q In operation and maintenance of compressors, Mr. Poor, in exhibit 53, at the top of page 2, your estimate is $15.00 per horsepower and in exhibit 52, on the first page, it is $25.00 per horsepower?

A That is correct.

Q Why is there that difference in operation and maintenance?

A Because of the very limited amount of horsepower required under the Inland Empire system as opposed to the very considerable amount of horsepower required under the Westcoast project to Pacific Northwest.

Q So your explanation is it is because of the difference in the amount of horsepower required?

A That is correct.

Q As between the two systems?

A That is correct, and your overhead attendant to either one.

Q Thanks, Mr. Poor.

CROSS-EXAMINATION BY MR. BREDIN:

Q I just have one question. Mr. Poor, I notice in borrowing money you have the figure 4%. Can you finance a project of this kind at such a low rate of interest?

A I believe you can. As you know probably better than I, interest rates fluctuate up and down and they have been doing that during the last 12-month period, between 3-5/8 to 3-3/4 to 4. I know none that have been financed at anything larger than that at this time. It might be more, it may be less. I think the 4% is a good realistic figure at this time.

Q That is all, thanks.

CROSS-EXAMINATION BY MR. PORTER:

Q Mr. Chairman. Exhibit 53, page 3, Mr. Poor, the last paragraph contains, I believe, this statement: "Of the projects for which applications are before the Board, only the project of the Westcoast Transmission Company employs an all-Canadian route. . . " You mean that the project to

take gas to the American Northwest only?

A Yes, I agree with that statement.

THE CHAIRMAN: Anyone else wish to cross-examine Mr. Poor.

CROSS-EXAMINATION BY MR. MILVAIN:

Q Just one or two questions, Mr. Poor. I would like to follow for a moment a thought that Mr. Nolan went into. In exhibit 53 Mr. Nolan questioned you about the difference between the $25.00 per horsepower and the $15.00 per horsepower. I notice too that in exhibit 53 you speak of $300.00 per mile for transmission line and in 52 you speak of $350.00 per mile for transmission. Why would there be that difference?

A I think you are referring to the lines in the United States?

Q Yes?

A The lines in the United States in the Inland Empire are through a much more rugged country than the lines in the United States of Pacific Northwest, and for that reason I have contemplated a higher operating maintenance cost.

Q So that not only the cost of installation would be higher but the cost of maintenance too would be higher?

A That is correct.

Q Now, in dealing with your field price, as you do at page 2 of exhibit 53, of an end of 10 cents, is that pursuant to an existing contract or is that just a figure you took?

A That is just a figure that was taken. Let us call it a philosophy. I have no knowledge of any contracts for purchase.

Q So in dealing with these figures increasing at 3/4 of a

cent per year and arriving at an end of 10 cents, those are just figures you were using for the purposes of your calculations rather than factual?

A Rather than factual figures, yes, sir, but I believe they are realistic figures.

Q But there are contracts in existence for purchasing gas?

A That I cannot answer, sir.

Q You have not examined them if there are?

A No, sir.

Q I see. In considering your estimated figures of the field price, were you considering a contract that would have a "favoured nation" clause?

A I have given no consideration whatsoever to the details of any gas purchase contract.

Q Similarly on page 3 of exhibit 53, where you speak of selling prices of 35, 36 and 37 cents per Mcf, those are average prices?

A Those are average prices.

Q And those are not factual prices but assumed prices?

A That is correct.

Q I take it from the answer you gave to Mr. Nolan that prices of 35, 36 and 37 as an average price might be too high to put you in the competitive field with other fuels?

A No. On the contrary, I feel it very definitely puts us in competition with other fuels. I do not agree with the testimony given by the distributing representative of a year or so ago.

Q Do you remember exhibit number 44?

A Not by number.

Q It is Pipe Line Project, Pacific Northwest, Main Line system in Canada, Main Line system in the United States, and gathering system in Alberta. Have you got one of those now?

A I have one before me.

Q And if you will look at page 8, and dealing with the table on the middle of the page?

A Yes.

Q Referring to fuel oil as serving domestic and industrial consumers, you have an average in the United States of 22, 38?

A I see that.

Q For industrial. Take an average of anywhere from 35 to 37 as you have on page 3 of exhibit 53, would there be competition with those prices?

A I think so, yes, sir.

Q Do you think you would be able to meet such a competition or would you have to reduce your price of gas?

A You are getting into the question of the philosophy of developing a commodity, a demand rate for specific purposes, which I have made no attempt to develop here, but it is my feeling that the average prices that we have assumed in here would meet competition. Now, when you take an average price it is quite obvious that certain classes of customers would pay more than 35 cents, others would pay less.

Q And as you cut the prices to meet that competition of fuel oil, it would increase the price to some other category of customer?

A That is quite obvious, yes, sir.

Q Now, seeing that these figures on exhibit 44 deal with

domestic and industrial, what other category of customer would you have to deal with?

A Well, basically the classification of customers are here domestic, commercial and your industrials. You have your three basic classifications that you can break down into several other components.

Q So if you had to reduce the price of your gas to domestic and industrial in order to meet this fuel oil competition, it would leave only the commercials upon which you could have the increased load, wouldn't it?

A If that were true, yes.

Q If that were true. And from a practical knowledge of all services that would be practically impossible, there are not enough commercial consumers to do that?

A If you were limited only to the commercial consumers that would be true but I do not subscribe to that theory.

Q Now, these average prices you speak of of 35, 36 and 37, are those gate city prices to the distributor?

A That is right.

Q And the distributor, of course, would have to tack something on top of that?

A Certainly.

Q For their own profit and operating cost?

A That is correct.

Q And do you know how much that would be?

A No, I do not.

Q So that even taking admittedly 35 cents as not a factual figure, but have you any idea as to what percentage would be added to that by the distributor, on the average?

A No, because it does not resolve itself into a term of percentage on the gate price. It is a matter of the spread that the distributing company must have between the city gate price and the average selling price within his own system in order to stay in business.

Q Doesn't experience teach that there must be at least some minimum spread in the way of percentage?

A Not in terms of percentage, no.

Q Not in terms of percentage?

A Not in terms of percentage.

Q Wouldn't experience teach you, as an engineer, that if you are buying gas from a transmission company at 35 cents that you must add some certain amount to it, as a distributor?

A The distributor must add something to it. What that figure is I am not prepared to tell.

Q But you cannot arrive at a fraction or a percentage?

A No, I definitely cannot arrive at a percentage.

Q I see. I notice too, Mr. Poor, at page 4 of your submission, exhibit 53, at the bottom of the page: "In recognition of this historical trend in demand for natural gas it is conceivable that Pacific Northwest markets may increase more rapidly than estimated, if a supply of gas is available." There are a number of factors that go towards making a supply of gas available. First there is the source of supply to get it from?

A That is correct.

Q And then there is the possibility of transmitting it from the source of supply to the source of use economically?

A That is right.

Q And then too, so far as supplying gas, assuming you get it in Canada, to consumers in the United States, it would be essential to have a permit from the Federal Power Commission?

A Quite so, but first we must have an export licence.

Q Oh, quite, you have to have an export licence from the Province of Alberta, and you also have to have a licence from the Dominion authorities. You must also, then, before supplying gas to the consumers of the United States, have a permit from the Federal Power Commission?

A Quite so.

Q So that no gas would be available to supply those consumers in the United States until and unless such a permit were obtained?

A That is correct.

Q Now, I am looking at page 5 of exhibit 53, and in the last paragraph you say this on the effect of load factor: "If the system load factor can be increased to 100% from the presently estimated 76.5%, the selling price can be reduced from 35.0 to 29.4 cents per Mcf, or, alternately, the 50-year field price can be increased from 10.0 to 15.4 cents per Mcf." Again that increase of field price would depend on what your contract with the field supplier would be?

A That is correct.

Q And the effect of the price being increased by the field supplier to your system would be such as to increase the price of gas to everyone in the Province of Alberta?

A I do not know.

Q Well, wouldn't you think so?

A That would depend on where it was located.

Q Wouldn't you expect that an increase in the field price to one set of producers in Alberta would encourage other producers to ask for increased prices too?

A Very definitely, very definitely.

(Go to page 1662.)

Q Then, too, I am wondering, Mr. Poor, whether the, or what effect load factor would have on field price when your field price is at a flat rate?

A Well, if the field price is at a flat rate, unless the contract -- well, if the contract provided for an escalation with a road factor it would not be at a flat price, so that it would have no effect on the flat rate.

Q So that your load factor would only affect price if there was a demand factor taken into consideration in fixing price?

A That, I think, is correct.

Q Looking again at exhibit 44, which you have, Mr. Poor, page number 18, it would appear that you look to your industrial load as the major factor in consuming gas?

A Yes, that is correct.

Q So that if there are changes in price in order to make the price of industrial gas favourable, it leaves a smaller proportion consumed by the other consumers which must carry that load?

A If that situation should prevail, yes.

Q Well, isn't that the case from your own estimates, or the estimates of your company?

Q Will you please read that first question to me?

BY THE REPORTER: "Q. So that if there are changes in price in order to make the price of industrial gas favourable, it leaves a smaller proportion consumed by other consumers which must carry that load? A. If that situation should prevail, yes. Q. Well, isn't that the case from your own estimates, or the estimates of your company?"

A The basic answer to your question is "yes".

Q MR. MILVAIN: Yes. So that, looking at page 18 of exhibit 44, you find that your total industrial, firm and interruptible, is a total of 33 million-odd Mcf?

A That is right.

Q And if the price on that 33 million-odd were reduced to meet competition of oil or other fuels, the remaining Mcf. would have to carry that load?

A That is correct.

Q That is all, thank you.

MR. C. E. SMITH: Apparently intereted applicants in this hearing, people like Northwest and so on, are wondering about this questioning, and I wish Mr. Milvain would let this Board know the interest his clients, if that is the correct word, have in this. To put it boldly, you are here to oppose the removal of gas from the Province or to assist, and I would like to know. I cannot come in here and say "I represent the W.C.T.U." and go ahead and ask a lot of questions. I am serious. I would like Mr. Milvain, if he will, to give us a statement as to his position here, that is all.

MR. MILVAIN: I think that I can answer that very freely. It is the interest of my client to see, so far as they can, that the industrial development of the Province of Alberta move forward in the best and the most rounded fashion possible, and that if the export of gas from the Province of Alberta would imperil that proper rounded development, we feel that this Board should be made aware of that fact, and it is our purpose, so far as we can, to bring that out. In other words, we are opposed to the export of gas unless it can be done in such a manner as safeguards the properly rounded industrial development of

this country.

MR. C. E. SMITH: Where have you been for the last two years, then, Mr. Milvain?

MR. MILVAIN: Mr. Chairman, and Mr. Smith: We regret very much not having been here earlier, but one knows how these hearings move along and people do not always become aware of their significance until sometimes late in the day. We regret as much as anyone does that we were not here at the beginning.

THE CHAIRMAN: Anyone else wish to question Mr. Poor?

EXAMINATION BY THE CHAIRMAN:

Q Mr. Poor, in exhibit 53, I wonder if you can tell me in regard to the gathering system the amount of working capital which you have included in the rate base there?

A I will have to go to my working papers on that, Mr. Chairman. The amount of working capital in the gathering system in the fifth year is $124,000.00.

Q Mr. Poor, what scheme is there for the retirement of the bonds?

A It is assumed that the bonds will be retired over the first 20 years of operation.

Q At so much a year?

A At so much a year. There is no retirement in the first year, but equal amounts of retirement in the next succeeding 19 years at 1/19th of the outstanding bonds.

Q Could you give me the amount of working capital for the transmission system on the basis of the depreciated investment?

A The amount of working capital in the fifth year of operation

is $932,100.00.

Q Is there the same provision for the retirement of the bonded indebtedness?

A Yes.

Q 1/19th?

A 1/19th.

THE CHAIRMAN: Mr. Nolan, I believe that you stated before, if my memory serves me correctly, that you might want to question Mr. Poor on one of the earlier exhibits, I believe it was number 44. I believe Mr. Porter expressed the same wish, to be permitted to cross-examine at a later date. I would like to have all of Mr. Poor's cross-examination finished with now.

MR. NOLAN: At that time, Mr. Chairman, I took it up with my principals and we came to the conclusion that there was nothing that I could usefully ask Mr. Poor. Thank you for reminding me.

THE CHAIRMAN: I see Mr. Porter is not here.

MR. McDONALD: If I might ask Mr. Poor a question while waiting for Mr. Porter?

THE CHAIRMAN: Yes.

RE-EXAMINATION BY MR. McDONALD:

Q Mr. Milvain referred to exhibit 44 at page 8, and he referred to fuel costs in the late fall of 1949. I just wanted to bring to your attention, if you go on to the next paragraph, there is an illustration of the price of bunker fuel varying from $1.50 to $2.50, is that not so?

A Yes, that is right.

Q Yes. Then another thought, in the exhibit which you have put in, you have taken into account income taxes at the rate of 52%?

A That is correct.

Q And you have taken into account increased costs of every nature from 1949 to date?

A Yes.

Q Now, is it not so that the income tax in the United States increased from the vicinity of 38% to approximately 52% since 1949?

A That is correct.

Q And would not that be reflected in the price of fuel oils as well as in any other commodity?

A Certainly.

MR. PORTER: Mr. Chairman, I have no questions of Mr. Poor.

THE CHAIRMAN: On the earlier exhibits as well?

MR. PORTER: No, sir, I have none.

THE CHAIRMAN: Thank you, Mr. Poor.

MR. McDONALD: I have prepared and ready for distribution, sir, an exhibit which contains documents received by the Westcoast company from producers, following the request by the Board to applicants on September 24th. Now, the documents I have cover all but two of the prospective suppliers of gas to Westcoast Company. Due to matters over which we have no control, these did not arrive on Saturday as anticipated. Also during last week there was a further discovery of gas in the area and we have made application to the company to advise us of their intentions. Now, I

thought, sir, that I could now distribute to the applicants the exhibit as I have it prepared and then when the other material is available, place the witness on the stand and deal with it. In the meantime, the applicants will have all the information which is contained in the statements before them. I might say there is contained in a number of these statements the matter of price which was referred to by Mr. Nolan.

THE CHAIRMAN: That will be exhibit number 54.

MR. C. E. SMITH: Is that entitled "Documents with respect to gas supply"?

MR. McDONALD: Yes.

SUBMISSION ENTITLED "DOCUMENTS WITH RESPECT TO GAS SUPPLY" MARKED EXHIBIT 54.

MR. McDONALD: It is entitled "Pipe Line Project to Pacific Northwest, Documents with respect to Gas Supply".

THE CHAIRMAN: Mr. McDonald, have you any other evidence to present other than the balance of the contract material and the matter of the storage?

MR. McDONALD: Yes, sir. I have had an opportunity during the recess to give some thought to the position of Westcoast as an applicant before this Board. You will recollect that the Westcoast Company has been the first company in all of these proceedings, and we have done our best to meet the main requirements before this Board, namely, to deal with the Alberta situation. In doing so, we have at this particular hearing in September divided our project into two parts, which I referred to earlier this morning. Now, it may be, sir, that it would be in the interest of the

Discussion.

Province, or the interests of the Province can be served by some other method of dealing with the supply of gas in Southern Alberta, or the deficiency which is intimated and set out in the Interim Report of the Board. For instance, at the time the evidence was given by Dr. Nauss, we dealt with the information available to him, which was presented. Since that time, a great deal of additional geological information and estimates of reserves have been placed before the Board on behalf of the Canadian Delhi Company, or the Trans-Canada Pipe Lines, also by Western Pipe Lines. It may be, sir, that their projects will take care of this deficiency in Southern Alberta. If it does, and the Pincher Creek gas is assigned or allocated to them, having regard to the matter of export to the East, then, of course, the Pincher Creek gas is not available to supply the requirements of what we call the Inland Empire area, or the Spokane area.

Now, the Board will recollect that on our previous submissions to this Board we have indicated and shown that we are or will be able to service that area, and I will say this, that the area can be serviced, and our submissions were prepared to show that we could do that. In view of the information becoming available on November 6th, that is the date of the contract with the Northwest Natural Gas Company and the Canadian Gulf, and the evidence that was adduced during the preceding part of the hearing, I intend to make application to the Board to consolidate and reinstate before the Board the information which is already in evidence, which will show how the Westcoast Company from its source of supply in the Peace River area can not only service the north-

west area in which the larger utility companies are situated, but also the market in the Spokane area, part of Idaho, and the Trail branch line from Spokane, and also including Hanford and the plants in the vicinity of Hanford.

Now, this will mean a revision and a tabulation of the evidence before the Board in part now imparts, and that exhibit, sir, will be prepared and made available promptly, and if I then, with the Board's permission, will be permitted to make application, I would like to do so.

MR. PORTER: It will be recalled, Mr. Chairman, that at the Edmonton sittings, Mr. Waterfield was called on behalf of Delhi and Trans-Canada and gave us then an engineering study of the contemplated gathering system and transmission line of Trans-Canada to Eastern Canada. Since that time he has had an opportunity to make further studies. In fact, most of the summer was spent upon them and he is now prepared to go into that. He has prepared, and I have handed out the new study. Now, it should be explained that this study replaces the one that was submitted in Edmonton. There are common parts, but it will be sounder for everyone using it to throw out the Edmonton one and rely on this one, which is up to date. Unfortunately, some of the copies that were distributed earlier contain a couple of maps that have been changed. We anticipate being able to supply those maps, but I have copies of the new one available, I think, in sufficient numbers for most of the applicants.

Now, I think with those remarks I will call Mr. Waterfield.

THE CHAIRMAN: That will be exhibit number 55, Mr. Porter.

DOCUMENT ENTITLED "ENGINEERING REPORT, SEPTEMBER, 1951," OF TRANS-CANADA PIPE LINES MARKED EXHIBIT 55.

MR. PORTER: I will call Mr. Waterfield. Mr. Chairman, as I recall it, we qualified Mr. Waterfield in the record in Edmonton.

THE CHAIRMAN: Yes.

.....

FLOYD EDWARD WATERFIELD, having been first duly sworn, examined by Mr. Porter, testified as follows:-

Q Now, Mr. Waterfield, you will recall giving evidence about this project in Edmonton when application was first made?

A Yes, sir.

Q And since that time will you tell us what you have done on the project, so as to bring forward this report?

A Yes, sir. As you have stated, this report, which is dated September, 1951, supersedes the one presented, which is dated April, 1951. At the time the April report was presented it was stated at that time that additional definitive work was necessary in order to make clear and to more clearly define and pin point a pipe line traverse, particularly through the Province of Ontario. The work presented in the April, 1951 report was the result of reconnaisance surveys over two possible routes for the main transmission line, which were made in August, 1950. It was recognized at that time that additional possible routes did exist, but due to

weather conditions it was not possible to fully explore them, and that could not be done until this Spring and Summer. This year three additional alternate pipe line routes have been very carefully surveyed, both by aerial reconnaisance and by ground observation by car, supplemented by such additional information as in the form of aerial photographic maps where available through the Dominion and the Provincial Governments. The two original routes were reviewed again by reconnaisance with the exception of that portion extending from Ottawa up the Ottawa River, and that one was ruled out in the very beginning.

As a result of the reconnaisance and survey work which was done this summer, selective elimination has ruled out certain parts of the traverses considered and others have been combined. In effect, the original route as proposed in the April, 1951, report is substantially the same from the Princess field up to Sudbury.

Q From Princess to Sudbury it is substantially the same?

A Yes, from Princess to Sudbury it is substantially the same as this April report. The line is now rerouted eastward from Sudbury via North Bay, then south along a believed to be better, more economical pipe line route.

In passing it is interesting to note that the total anticipated amount of transmission lines and laterals as contained in the April, 1951, report, due to the refinements which have been made, has been revised upwards only to the extent of a net approximate 10 miles.

The investment, as was predicted, or as it was predicated in the April, 1951 report, has remained

unchanged, but there is a redistribution and a re-allocation of costs, which we pointed out it might be possible at the time this April report was presented. And while it was not expected that there would be complete concurrence in the construction of section allocation with regard to the main lines and laterals, I think there would be concurrence in the fixing of the boundaries and breaking them into sections.

So far as possible each section intends to present topographic and construction conditions which are alike, or sufficiently similar to be grouped within one broad category of construction conditions. Furthermore, each of these separate construction conditions, presenting as they do variable topographic figures, have been compared to like or similar types of topography and construction in other parts of the world where pipe lines have actually been laid.

Q Now, let me follow you. You break your entire line into 13 sections?

A Yes, sir.

Q And you put into a section the territory of a common type in each section?

A Which may be classed so, as an average.

Q I see, and then section by section you have compared the problem contained in each section with a similar country where you have construction experience?

A Where construction experience has been gained. That was done in order to get a better appreciation of the probable construction costs, and which may be a more realistic approach

as to what the investment costs might reasonably be expected to be at this particular time.

Q Well, now, Mr. Waterfield, unless you have something to add by way of explanation, perhaps you might turn to your exhibit?

A May I, sir, first point out that one of the changes which was made in the report in which came out first and the one which is now being presented here, in the gathering system it deletes the 28½ mile line from Drumheller to Hanna and in its place substitutes 33 miles of 8-inch pipe from the Medicine Hat field into the main 30-inch transmission line out of Princess, and those are the net changes which are made, and, as you stated, will be available for those reports which do not contain them.

Q Now, perhaps you could help everyone by telling us just where to find the map on which that change has been or will be made?

A Yes, sir. The section marked "Gathering System". . .

Q Yes?

A . . . presents and has there an exhibit or a map marked "Drawing number S- 2". That one is changed to make the change I have just mentioned.

Q How many pages is that behind the tab on which we find the words "Gathering System"?

A It occurs behind page 2, which gives the summary estimate of total gas.

Q The first map in the document behind the tab marked "Gathering System"?

A That is right. And the next one is Sheet 1 of the several maps.

Q MR. C. E. SMITH: Before you go on, the one we presently have here, is this the old S-2, or is this to be corrected?

A The new S-2 has been corrected and given the same number.

(Go to page 1675.)

A The sheet which is marked sheet 2, of five sheets, which would be the third one in the book, has been changed to remove the Drumheller 8-inch line, and will contain the same number. That is the only change there is on that map.

Q And in the exhibit which we have just now filed, those changes have already been made?

A Yes, sir. The next sheet is sheet 3, of five sheets, and it shows the addition of a 33-mile 8-inch line directly northward from the Medicine Hat field on the west side of the Saskatchewan River intersecting the main 30-inch eastern transmission line.

Q MR. C.E. SMITH: What sheet?

A 3 of five, sir. Those are all of the map changes which have been made.

Q MR. PORTER: Well, now, I see your exhibit opens with a description of the project and a description of the gathering system. You might read those two statements.

A The natural gas pipe line transmission system as now planned by Trans-Canada Pipe Lines Limited, provides for the complete construction of all facilities necessary for gathering natural gas within the Province of Alberta and transporting it to existing market centers in the Provinces of Saskatchewan, Manitoba, Ontario and Quebec. The entire pipe line system will be constructed and operated wholly within the Dominion of Canada and the plant account is currently estimated at 253 million U.S. dollars.

The gathering system as now projected will

receive gas from 34 fields through 747 miles of 8 inch to 24 inch pipe line. The system is designed to handle an existing net sales load of 346 MMCFD and can be increased to 515 MMCFD at a very nominal cost.

Q Now, Mr. Waterfield, I think as we go we might clear those things up. I observe that the plan contemplates connection with 33 fields in Alberta, which, of course, I take it is capable of change as developments dictate?

A It has been the history that there is a state of flux existing until the pipe is actually in the ground and the fields producing gas into those lines.

Q All right, sir.

A The main and lateral line transmission system consists of 1803 miles of 30-inch pipe, 295 miles of 24-inch pipe, 110 miles of 18-inch pipe and 39 miles of 14-inch pipe, which equals a total main line system of 2247 miles. Thirteen pumping stations will be constructed to handle the initial sales volume which will be made available at the gate plants of 71 cities and towns through 270 miles of 6-inch and 12-inch sales laterals. And here again a state of flux will prevail until gas is delivered to the consumer. Additional sales requirements can be met and the system enlarged to its ultimate capacity by constructing twelve booster stations on the 30-inch line and one booster station on the 24-inch lateral line to Montreal.

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ESTIMATED PLANT ACCOUNT

INTANGIBLE PLANT,				$ 600,000
TRANSMISSION				
Land & Land Rights:				
Station & Building Sites,	$ 208,000			
Rights-of-Way,	3,030,500		$ 3,238,500	
Mains:				
Fields to Princess Station,	28,753,300			
30" Main Line,	139,518,500			
24" Lateral to Montr'l	14,581,300			
14" Lateral to Ottawa	1,192,800			
18" Lateral to Stratford,	4,130,900			
Other Laterals,	5,004,600			
Gas used in Purging	100,000			
Gas used to fill Line	300,000			
Location & Mapping,	1,890,200			
Engineering & General Overhead,	4,875,000	200,346,600		
Compressor Stations:		20,038,000		
Meters, Regulators & Lateral Assemblies,		1,046,700	224,669,800	
Furniture & Fixtures,		150,000		
Communications Equipment		1,874,000		
Tools, Work Equipment & Transportation,		1,500,000		
Warehouses & Garages				
Land,	56,200			
Structures,	500,000	556,200	4,080,200	
			229,350,000	
CONTINGENCIES,			12,450,000	
INTEREST DURING CONSTRUCTION,			10,200,000	
TAXES DURING CONSTRUCTION,			1,000,000	
TOTAL -			$ 253,000,000	

I wish to make an observation at this point in regard to the estimate of $253,000,000. That does not contain, or that figure does not contain any taxes other than those which are anticipated upon physical equipment in the form of ad valorem taxes during the period of construction. It also contains no provision for import duties from whatever source.

Q MR. McDONALD: How about sales tax, Mr. Waterfield?

A There are no sales taxes, no excise taxes.

Q MR. PORTER: Now, the page following that entitled "Description of Project" contains the figures by which you arrive at the $253,000,000?

A Yes, sir, and the supporting detail for the summary figures are contained in the succeeding separate divisions and exhibits under those divisions.

Q That is, in the 13 separate divisions?

A Yes, sir. Not only in that, but in your gathering system, in the main and the lateral line systems, in the sales laterals and in the compressor stations section.

MR. PORTER: I do not know quite how far to go. You will recall at Edmonton Mr. Waterfield gave us a long map and showed us the route. That is all in the record and unless there is some need for it I do not want it at this stage. It is repeated in the exhibit.

Q THE CHAIRMAN: There are no changes as far as Sudbury?

A That is correct.

Q Perhaps Mr. Waterfield could give us the changes between

Sudbury on?

A Yes. There are seven construction or defined sections from Princess up to Sudbury.

Q And those correspond?

A And those correspond. The only difference being that the map submitted in the April 1951 report was a continuous strip map and was a little bit awkward to handle, so we have cut these down so that they can be unfolded into convenient lengths for observation. Otherwise they are the same.

Section 8, for which a separate map is given, shows the proposed traverse between Sudbury and Callender.

Q MR. PORTER: Is that the one?

A I beg your pardon.

Q Is that one of those which was changed?

A That is a new route, a complete new route. It is the result of the further study that I mentioned in the beginning.

Q So Section 8 is a re-location?

A That is a complete re-location, yes, sir.

Q Now, then, what about Section 9?

A A separate map is included for it, Mr. Porter. Section 9 is from Callender to Grechin,, and that is also a new location and a separate exhibit map and estimate was provided for that.

Section 10 is from Grechin to Brooklin, and is also a new location and a separate map and estimates are included for that section.

Q Section 11, I observe, is the lateral line?

A Section 11 extends from Brooklin to Montreal, and for the

greater portion of the 295-mile distance it follows the original traverse, the only difference being that Brooklin is nearer to Montreal than the terminus of the original 30-inch line and therefore shortens it some and throws a slight angle into the alignment, and a new map is presented for what is now Section 11.

Section 12, which is the lateral from Morrisburg to Ottawa is unchanged and as it was originally presented.

Section 13 is the lateral from Brooklin to Stratford and except for that additional length which was taken off of the Brooklin to Montreal section and added to the Brooklin to Stratford section, there is no change.

Each of these construction sections presents its own individual brief, topographic description and estimate of quantities, probable construction costs and accompanying exhibit maps.

Q Now, let us return to the gathering system.

A Pardon me, sir, please. If any confusion arises at any time you will note that following the first sheet of the main and lateral system there is a key index map which identifies each of the separate construction sections by map number.

Q Now, will you read the remarks in your brief respecting the gathering system?

A <u>GATHERING SYSTEM</u>

The gathering system lies wholly within the Province of Alberta and is designed to serve the fields named on Diagrammatic Sketch S-2 and for which the daily estimated withdrawal rates are shown in parenthesis. It

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Dir. Ex. by Mr. Porter.

is assumed that gas will be received in a moisture and sulphur free condition and at the stated field pressures. The system can be expanded to a capacity of 570 MMCFD by a slight increase in field pressures and the construction of a second booster station at Hanna.

Unit contract construction cost estimates are given in Table (1) and additional cost data is given in Table (a) and other supporting statements.

Most of the topography along the presently proposed traverse does not present any unusual or extreme construction problems with the exception of the larger rivers, swamp, muskeg and marsh areas.

Consideration must be given to the construction period and if it should occur during severe cold or wet seasons, the presently predicted costs would be materially increased.

GATHERING SYSTEM (con't)

TOTAL COST ESTIMATE

1.	Line Pipe 97,050 tons @ $125 per ton		$ 12,131,250
2.	Freight:		4,483,710
3.	Coating Materials,		1,583,098
4.	Contract Constructions:		
	(a) Regular,	$ 8,974,180	
	(b) Special:	1,088,700	10,062,880
5.	Valves and Fittings,		169,362
6.	Compressor Stations (1280 BHP)		323,000
			$ 28,753,300

The gathering system is laid out to currently transport the presently foreseeable markets and its expansion to 570 million feet per day leaves open a question, perhaps, of where that might occur, and as a part of the

assignment a separate project is included which is termed a possible future extension into the rather broadly classified Peace River area.

Q Where do we find that?

A That is at the very last part of the gathering system, the description being given on page 7 of the gathering system section, the estimated cost on Section 8 and supporting cost data on Section 9 comparable to that which was presented for other construction sections. The map follows and is marked Sheet 5, of five sheets, future extension to Peace River. That facility provides for a probable 150 million cubic feet of gas per day and the estimate is based on the facilities required to transport that quantity. All or any part of it may or may not be constructed. In either or any case the investment is not a part of the summary $253,000,000 presently contemplated.

Q Is there anything else that you think it is necessary to explain so that it will facilitate the study of this material?

A I believe that it will be found to be largely self-explanatory from this point on as it presents data supplied by others on the location of sales points with their anticipated probable load and the miles of pipe estimated to connect the main lines with these points, and the costs of those facilities are contained herein. The sales laterals, as I mentioned with regard to other factors, are in a constant state of flux and they may or may not exist exactly as presented here, but in total it is reasonable to me, at least, to expect that there would

not be very much difference either in size, length of pipe, or total investment involved.

Q Now, you have had an opportunity of examining the physical characteristics of the areas within each of your 13 subdivisions?

A Yes, sir.

Q And of comparing them with what you consider like conditions that have actually been met and overcome elsewhere?

A I would like to say that so far as my experience goes, but my judgment and experience has been supplemented by that of other competent practical pipeline construction people, and where I did not have the direct experience their's has been relied upon.

Q Now, is there anything in this line in the way of terrain that has not been encountered in actual physical construction in other lines?

A If there is, sir, it is hidden down to now.

Q So far as you know, you do not meet on this line, then, any conditions that have not been met elsewhere?

A Nor do we meet conditions which are insurmountable.

Q Now, I am going to ask you one question just to sum it up. Based on your examination the last summer and this year, and the assistance which you have had from those whom you have consulted in the pipeline construction business, what is your opinion about the feasibility of this line, first, and the possibility of its being constructed within the figures, the total figures, set out in your report?

A My personal feeling is that the present projected traverse

for all of the lines are real, they are practical, and they are feasible and that they can be constructed if built under a single impulse plan at the present time for the figures as stated.

MR. PORTER: Now, Mr. Chairman, I do not propose to go beyond that in detail. It may be some of the other interested parties will want to study some of this detail and examine on it. Mr. Waterfield is at their disposal. Unless I go into all of the detail it seems to me there is little use in going into any of it because the report in the nature of it is submitted for study rather than discussion.

THE CHAIRMAN: Does anyone wish to ask Mr. Waterfield anything just now?

CROSS-EXAMINATION BY MR. NOLAN:

I just want to ask just one thing, if I may.

Q Mr. Waterfield, I notice that you were careful to point out to your counsel that you had omitted certain taxes from your computation of $253,000,000. Why did you omit those?

A I felt that those were questions with which I was not sufficiently informed. I am not familiar in its entirety with all of the ramifications of Canadian tax laws, or those of the United States either, for that matter, and many of the factors which will, I feel sure, have some material effect on those taxes reverts back to what I would class as a company policy of the owner, what he might or might not do, and as my commission revolves almost entirely around the physical aspects of this problem rather than one of forecasting what the ultimate book value might be, I left them out.

Q Well, Mr. Waterfield, so far as the policy of the owner is concerned, can you suggest to me any way in which he can avoid taxation of these kinds?

A Yes, I might make you one suggestion. If he wished to take native iron ore in Canada, build a smelter, a rolling mill and a pipe mill, I am sure it would not be.

Q But you are quite sure that there would be sales tax?

A I believe that is general, the general thing in Canada.

Q MR. PORTER: If there is a sale?

A Yes, if there is a sale.

Q MR.NOLAN: In any event, if you did or had taken into consideration these items of customs, excise and sales tax, it would materially increase your 253 million figure?

A How materially I would not hazard a guess, sir, and I would hate to make one and be nailed to the cross for it.

Q You would not like to even give me a rough estimate, Mr. Waterfield?

A It would certainly be very rough. It would not be an estimate, it would be a pure guesstimate.

Q All right.

MR. C. E. SMITH: We have had lots of those, go ahead.

MR.PORTER: Mr. Chairman, perhaps I should say something on the subject, which is a proper question from Mr. Nolan's standpoint, the question of taxation and its impact on this line is most significant at the level of duty. The other items in the aggregate would not be too much. A study is being made towards making this pipe in Canada as part of the project out of materials which reach Canada duty free from Great Britain, and if those

studies work out there will be no import duty on the material and none on the pipe, but there will be an industry in Canada making this pipe, which will have as its first initial order about 660,000 tons of steel. So that we are talking about figures which would make it possible to do certain things which a smaller enterprise would not be able to do. That is why no figure is included, and if any figure were included, it would depend on earlier questions and collateral activities which have not been decided.

.....

CROSS-EXAMINATION BY MR. STEER:

Q Where will I find,Mr. Waterfield, a list of the 34 fields that you refer to in this document of yours that is headed "Description of Project"?

A The list of the 34 fields is not tabulated to identify them by name, but it is on this exhibit S-2.

Q That is this long map?

A Yes, sir, you will find the names on there.

Q Will I find 34 different fields on here?

A If you don't, I have made a miscount.

Q I made one one day.

A I am just human, I might make one too.

.....

CROSS-EXAMINATION BY MR. S. B. SMITH:

Q Mr. Waterfield, could you tell me the cost per ton of 30-inch steel pipe, f.o.b. the mill in the United States today?

A Yes, sir, recent invoices are $121.00 per ton.

THE CHAIRMAN: Mr. Nolan, have you finished?

MR.BOLAN: Yes, thanks.

MR.MARTLAND: I understand the witness will be available further, sir, and I prefer to cross-examine him tomorrow.

MR.MILVAIN: I would prefer to wait until tomorrow, Mr. Chairman.

MR. S. B. SMITH: I would like to ask the witness one further question.

Q That was a recent invoice, you said?

A A carload of pipe shipped yesterday.

Q What was the date of the contract for the purchase of that pipe?

A It was tentatively placed in August of this year.

Q Do you know the price at the mill today in the United States?

A That is the price.

Q If you go to buy it today?

A That is the quoted price.

Q Today?

A Yes, sir. I asked that question specifically of the owner of the mill that I had the pleasure of visiting just last Friday.

.....

CROSS-EXAMINATION BY MR. STEER:

Q What is this Table 3 on page 5 of your gathering system report? I see a lot of fields named there?

A Table 3 on page 3?

Q On page 5?

A Oh, page 5?

Q Yez?

A Those are not fields.

Q I see?

A I might go one step further to explain it to you. Freight is quite an item in the transportation of the tonnages required, and in order to get a more exact picture of what that freight cost would be, the Corporation House Limited of Ottawa was asked to prepare freight rates from a common point of origin, namely Sault, and the Sault was picked as being a reasonable point, and those rates are projected on pipe and other materials to the destinations named in this tabulation, and the quantities of pipe which would probably be shipped to those destinations are given, with the size, their weights, their tonnage and the freight rate is given, and this Table has no relationship to the fields unless the names should happen to coincide.

Q So that the only way I can find out what field you propose to tap is by looking at this long map?

A Yes, sir.

Q That is right?

A Yes.

Q And where do I go to find out how much gas you propose to take from those fields, do you know?

A Right on the same map you will find in parenthesis the figures which were given to me and are not mine.

Q Where do they come from?

A They came through Canadian Delhi, from their development of previously presented testimony.

Q Quite so?

A In previous gas hearings.

Q Quite so. Now, when you look at this, will you look at the top at Jarvie, that is one of the fields that you propose to tap?

A Yes, sir.

Q And the quantity of gas that you propose to take from it is what?

A 10 million.

Q What, 10 million what?

A Feet per day.

Q Yes?

A That is shown in parenthesis and it is explained in the preface.

Q Then Boyle, 2 millioncubic feet per day?

A Yes, sir.

Q Yes, and so on?

A And so on, yes.

Q MR.MILVAIN: Is there a Table anywhere, Mr.Waterfield....

A I beg your pardon?

Q Is there a Table anywhere which would show the total amount of gas it is anticipated will be taken from the reservoir in each of these places?

A No, sir, not in this report.

MR.PORTER: Mr. Chairman, perhaps I should explain. Mr. Milvain was not here earlier. The exhibits which you obtained the other day, Mr. Milvain, show an availability and a deliverability study from which these came.

MR.MILVAIN: It is in those four volumes?

MR.PORTER: That is right.

EXAMINATION BY DR. G'VIER:

Q Mr. Waterfield, can you tell me how the fields to which the Provincial gathering system is connected were selected?

A No, sir. I merely took the data that was given to me and I was told, let me put it this way, I was told "here are the fields from which gas will be withdrawn, in these areas; now design a pipe line to serve them."

Q Well, then, for example, referring to Sheet 1 of the gathering system, it describes the system from Gadsby north to Boyle and Jarvie?

A Yes.

Q Referring to that, Mr. Waterfield, am I right in assuming that you do not know if it is economical to build a line 45.2 miles and 10 inches in diameter up to Boyle and Amisk Lake?

A I can only assume if those volumes are there then that is the size of line which would be required to receive that volume in conjunction with the other volume.

Q But you have made no study whether or not the transportation of that amount of gas is economical over that distance?

A No, sir.

Q Nor whether there is sufficient gas in the Boyle and Amisk Lake fields to justify the expenditure?

A I am not a geologist, so that I accept what the geologists say.

Q I do not know whether anybody will accept that?

A If they are wrong, I am wrong.

Q I was also wondering, Mr. Waterfield, whether you gave any particular thought to serving Alberta communities when you planned the Provincial gathering system?

A That question was asked and the answer I can give you is "yes". This was not included in a part of the report, but it is admissible, I presume, in that this map which I hold here shows the existing gas pipe line system, and superimposed thereon is the gathering system of Trans-Canada and the points of intersection can be noted. Now, the size of these facilities, the size of pipe, quantities transported and demand, are something that I have no knowledge of at the moment, but it does show that tie-ins can be made between the proposed gathering system and those which are existing.

MR. PORTER: I should explain, Mr. Chairman, to the Board, that at the close of the last sittings my clients were requested by the Board to make a study of the means by which Alberta's communities could be served. That study was undertaken by Mr. Trostel with the aid of Mr. Waterfield, and Mr. Trostel will be here giving the availability and the deliverability of the fields serving Alberta and Trans-Canada, or both, dovetailing into a pipe line structure, including the gathering system for Trans-Canada, which is calculated to best serve Alberta. Mr. Waterfield's part in that was purely to see what size line and how much pipe was needed to give effect to Mr. Trostel's estimate of sources and quantities and availability, so that I think Mr. Trostel will be better able to answer the question that Dr. Govier has asked than Mr. Waterfield.

MR. STEER: I wonder if it would be possible before, sir, Mr. Trostel coming here, or if we were in advance of Mr. Trostel's coming here able to have a copy of that map?

MR. PORTER: Well, you will have a copy of the whole study and I do not want to put it in piecemeal. Mr. Trostel will be here. The study is about complete. It has involved weeks of work, long hours for a good many folk, and it includes a complete re-study of the availability program that was submitted to the Board. Now, it cannot be made available until the first of next week, it is just not physically possible to get the job done and get Mr. Trostel here, but it will all be submitted as quickly as it is available, and everyone concerned will have it.

MR. STEER: You see, Mr. Chairman, that is a subject in which my client has a vital interest and will require to give a great deal of study to it. If we could have the map now, so that we could look into it in the meantime, it might save a lot of time in the future.

MR. PORTER: Well, I do not want to submit a map that may or may not be right, having regard to the fact that the work is not concluded, and the facts are now being assembled. I think there will be plenty of time to study it.

Q MR. MACLEOD: Mr. Waterfield, will you mind telling me what the significance is of the other figures other than those in brackets, take Boyle, there is the figure of 800?

A That represents the initial input pressure.

Q DR. GOVIER: Mr. Waterfield, the figure in parenthesis is the peak day carrying capacity of the line?

A That is right. It can be regarded as peak day or maximum daily, either way.

Q That the line is capable of handling that much on a peak day?

A Yes.

Q And the line is not capable of handling any more gas?

A No, sir.

THE CHAIRMAN: We will adjourn until tomorrow morning.

(Hearing adjourned until 9.30 a. m. November 14th, 1951.)

The Province of Alberta

PETROLEUM AND NATURAL GAS CONSERVATION BOARD

Application for Permission to Remove or cause to be removed Natural Gas from the Province of Alberta, under the Provisions of the Gas Resources Preservation Act by Western Pipe Lines.

I. N. McKinnon Esq., Chairman

D. P. Goodall Esq.

Dr. G. W. Govier

Session:

Volume_____